Vol. 72
No. 1

Gleanings in Bee Culture

Established 1873

January
1944

The Beekeeping Industry and Insecticides

By J. E. Eckert

Associate Entomologist, University of California, Davis, Calif.

The Beekeeping Industry Must Protect Itself from the Disastrous Results of the Promiscuous Broadcasting of Poisonous Dusts

One of the greatest menaces to the welfare of the beekeeping industry—greater even than all of the brood diseases combined—is the application of poisonous dusts and sprays to growing crops. This is a severe and broad statement but the experiences of the past several years have proved it to be true and the factors that make this menace formidable are increasing rather than decreasing.

A few decades ago, farming operations were confined largely to units of land as large as the enterprising family could manage with a minimum of seasonal help. The invention and use of powered machinery of all kinds made it possible to increase this acreage per man hour and specialized farming operations called for still more specialized types of machinery. Labor-saving equipment will continue to reduce hand labor and horse drawn vehicles on the farm and increase industrialized farming operations.

This change in the agricultural picture affects beekeeping in many respects. The value of locations for beekeeping operations may change rapidly from year to year, and pest control operations may make large areas unsuitable for beekeeping practices, unless greater control is placed on the manner in which insecticides are applied. A change in the relationship of beekeeping to agricultural operations in any given area may affect regulatory measures connected with insect control methods.

On small acreages or plantings, insects may be controlled by the use of hand operated equipment or by low powered ground machines that deliver the poisons directly on the plant and apply a minimum of insecticides in a given area. When the acreages are increased beyond this point, it is necessary to use machines of greater capacity and with their use, larger quantities of poisons are applied in any particular location and the danger to beekeeping, and to certain other agricultural practices, is increased in like proportion.

When liquid sprays are applied to orchard trees or to cultivated crops, the materials are confined very largely to the crops treated and the beekeeper has no poisoning problem unless his bees visit the trees or crops treated or the cover crops or weeds growing in the area sprayed. If the honeybee renders an essential service to the crops treated, the grower quite willingly will cooperate with the beekeeper by adding repellents to the spray or by not applying the sprays when the trees or plants are in bloom or will cut or plow under the cover crop beneath the trees. The laws of many states recognize the value of bees to the general welfare of agriculture and to society as a whole and attempt to direct the application of sprays in their relation to the blooming period of fruit trees in order to safeguard the beekeeping industry.

When toxic poisons are used in the form of dusts, the factors involved promote a series of complications for many agricultural operations and may even constitute a hazard to public health. To be effective, the poisons must be reduced to fine particles and the smaller the particle, the more prone it is to float in the air when cast adrift. The more power that is used to broadcast powdered poisons and the greater the distance above the ground the poisons are released, the greater will be the tendency for the materials to drift with the wind or even with the heat waves radiated from the ground. The greater the tendency to drift, the greater will be the amount of the poison required to

give satisfactory control; thus a vicious cycle is created.

Hand dusters can be used effectively to deliver poisonous dusts to low growing plants but the quantity of dusts delivered is hard to regulate and the procedure does not lend itself to large scale operations. The next step is to use powered dusters and these take on a variety of forms with varying degrees of effectiveness in relation to insect or fungus disease control and to the amount of the materials that drift from the fields treated. Tractor-drawn or self- propelled ground dusting-machines may apply the dust directly to one or more rows of growing crops or may blow the dusts horizontally or even vertically and depend on the dust to settle on the plants where it will do the most good. Then there is the airplane that is flown above the growing crops at distances of a few feet to 15 or more feet above the plants and from which the poisons are released at a speed approximating 100 miles per hour. Certain dusting machines can apply poisonous materials to crops at only a fraction of the cost of liquid spray applications and greater acreages can be treated in the same length of time. In some cases, and especially in large scale farming operations, the speed of application may play an important part in insect control and this factor, coupled with that of cheaper costs and lower man power requirements, has greatly stimulated the use of dusters instead of sprayers, especially in the treatment of cultivated crops.

It is seldom necessary for the grower or farmer to notify any public or regulatory official or even to comply with a common sense consideration of notifying his neighbors when they might be adversely affected by the poisons he intends to apply. When only liquid sprays are used, there is little need for the grower to consider the probable effect of the poisons on the rights and privileges of his neighbors because the poisons are confined almost wholly to his own premises unless, as previously stated, the plants or trees are sprayed when in bloom and the results might be destructive to beekeeping interests in the vicinity. But when poisonous dusts are applied to growing crops, these poisons cannot be confined to the fields treated and especially so when applied by horizontal blowers, or by airplane, or under weather conditions that promote the drift of dusts.

A majority of our present laws relating to the application of poisons are still based on the use of liquid sprays and on the consideration that the poisons can be confined to the fields or crops treated. No adequate measures have been adopted by our state or federal regulatory agencies to so regulate the application of poisonous dusts as to protect the rights and interests of adjacent property owners from the hazards of drifting poisons, except through court action.

It seems obvious and reasonable that no beekeeper or regulatory authority will deny the grower the right to apply poisons to his growing crops to prevent the ravages of insects or fungi, if the poisons are confined to the fields and crops treated and are applied in a manner that will not injure or interfere with the rights and privileges of his neighbors or create a health hazard when the food product is sold. In fact, we all should support the grower in that right to protect his crops and the investment he has in them.

It is an entirely different matter, however, when anyone applies poison in a manner that will cause it to drift in lethal quantities over adjacent fields, to the destruction of and interference with the property rights and interests of others. Under such conditions, the interests of the public should be considered first and the matter of expediency or cheapness of application or even the efficiency of the laws and regulations pertaining to quarantine are to **prevent** increased risks or losses to others. A vast majority of all our civil laws are based on the prevention of crime or **prevention** of loss to innocent parties. Ample precedents are available to show the need of confining poisonous materials to the fields treated so that the drift over adjacent fields will not injure beekeeping, dairy, poultry, livestock, and other interests. No way has yet been found to accomplish this end.

In spite of all the obvious arguments and democratic principles in favor of preventing the promiscuous (uncontrolled) application of poisonous dusts, there is a general tendency on the part of many regulatory agencies, to take the attitude that "the beekeeper can either move out of the danger zone or take his chances with the drifting poisons", and in the

event he is injured, he can go to court and sue for damages. This is the situation and general procedure even though the beekeeper owns or rents the property on which he maintains his bees, has his home there, and has lived there in peace and comfort for years. Sometimes he is notified and again he is not, even though the crops treated are not attractive to his bees and the bees are killed by gathering poisons that drift over adjacent territory. Sometimes the poisons drift for distances of two or three miles in quantities that are lethal to bees and certainly are not beneficial to various forms of livestock or to human health, and adversely affect beekeeping within a radius of three to six miles from the fields treated.

In California, and other states, repeated efforts have been made to enact regulatory measures that would require the **confinement of poisonous materials to the fields treated** and although considerable progress has been made, hundreds of colonies are killed needlessly every year and great financial losses suffered by members of the beekeeping industry. Efforts must be continued to secure adequate control measures, efficiently enforced, to prevent injury to bees and to other agricultural interests from the injurious effects of the careless and promiscuous application of poisons. In the meantime a movement is growing fast among members of the beekeeping industry to pool their financial interests in recovering losses through court action whenever justifiable cases arise. In this effort, the industry will receive the support of other agricultural agencies so as to prevent the needless distribution of vast amounts of poisons over alfalfa fields, pasture lands, poultry yards, fruit drying yards, or home gardens where they may cause serious losses to a vast number of interests.

The California State Beekeepers' Association, with the aid of other agricultural interests, is sponsoring a "poison protection committee" whose purpose will be to raise funds to support court cases in the event of injury to the property of its members through the careless and uncontrolled application of insecticides. It will be the intent of this committee to make this fund permanent by accepting only those cases that have every reasonable assurance of gaining a favorable decision in court and to replace the court costs from the amounts of the judgments rendered. It is the hope of the committee that by establishing such a fund, sufficient precedents may be established by court action to afford beekeeping and other agricultural industries protection from the practices involving the careless use of poisons. This question was discussed for the first time at a recent meeting of the California Bee Breeders' Association and over $1200.00 was paid into the fund and more than $900 promised, on the basis of a per colony assessment of 10 cents per colony.

Another state beekeepers' association has attacked the problem in a similar way. Their members had lost over 7000 colonies of bees within two years in only two counties; the loss being due primarily to the dusting of cotton with arsenical dusts. Because of the heavy losses in the past whenever certain poisons and methods of applying them were used, the association is asking the court to have the growers and the commercial companies applying the poisons to show evidence in court why (1) it is necessary to apply the poisons that would prove harmful to other agricultural interests, and, (2) why it is necessary to use a method of application that will not confine the materials to the fields treated but cause destructive amounts of the poisons to drift over adjacent property. We are advised that one such case was settled out of court, with the commercial companies agreeing to pay all expenses of moving the bees from the area and the growers, after the delay caused by the moving, deciding that it wasn't necessary to apply the poisons at all.

The fundamental concepts of this "poison protection committee" will be (1) that the grower has the right to apply poisons when necessary to protect his crops from the ravages of insects or fungi; (2) that the poisons should be applied in a manner that will confine them to the crops treated and cause the least injury to other agricultural interests; (3) that beekeeping is an essential agricultural occupation and should be protected by efficient regulatory practices; and (4) that the industry cannot survive on the policy of "either move or take your chances of collecting damages in court" and will protect itself against the disastrous effects of promiscuous and uncontrolled applica-

tions of poisons by court action if necessary.

These fundamentals embody some of the democratic principles under which we all have the right to live. Poisons that are permitted to drift from the field treated can be of no possible benefit to the grower and when he pays a commercial operator for applying poisons to his crops, he should not be charged for wasted materials or for damages that result from the poisons that drift over adjacent territory. The unnecessary use of poisons that are likely to injure the interests of others should be curbed, especially in these times when there are insufficient quantities of insecticides for reasonable practices of insect control. One method of controlling the promiscuous applications of poisons for the purpose of reducing losses resulting therefrom, would be to require the responsible parties to post sufficient bond to cover all damages that might occur from their use. This would safeguard the grower from the careless application of poisons by commercial interests that are concerned primarily with the broadcasting of poisons. It would also reduce the effectiveness of the high-pressure argument of keeping crops covered with poison dusts to offset any insect injury that "might" occur. It would also cause the persons responsible for applying poisons to think of the possible damage such applications might cause to neighboring property and interests and thus reduce the total amount of such poisons applied. The grower of agricultural crops should also be protected by a guarantee that the poisons he buys for specific purposes will accomplish those purposes, and are needed. This information can generally be secured through some of the county or state officers, without charge, if the grower will contact official sources before making his purchases or contracts.

There will always be the bright rays of hope that sometime a material will be found that will be ineffective or repellent to the honeybee and domestic animals and yet destructive to injurious insects; or that some biological means will be found to control each destructive insect without the use of poisons; or that some machine will be perfected that can be used to apply poisons to row crops that will not injure the plants and will apply and confine the materials to the plants treated. The first hope is largely visionary for the honeybee is generally seriously injured by most stomach or contact poisons or sprays; and repellents are of little use if the poisons on the plants outlast their repelling qualities. Progress has been made on the biological control of some insects. The third proposition seems quite feasible and will undoubtedly be employed just as soon as legal restrictions prevent the promiscuous broadcasting of poisons. The mechanization of farming operations increases the promise of the use of more efficient machines than those that cannot confine the materials to the crops treated. When this promise is fulfilled, the losses to beekeeping and other agricultural operations through the destructive drift of poisons will cease and the grower will secure more efficient insect control, use less poisons, and get better crops,

Until that happy day comes, however, the beekeepers must organize to fight their cases in court, and bend every effort to secure better and more adequate regulatory measures of poison application or simply try to exist under the edict to "either move or take the consequences." The beekeeping industry cannot exist under the uncertainty of uncontrolled application of poisons. All beekeepers are affected, for if some thousands of colonies are crowded out of one county or state by the threat of uncontrolled application of poisons, they will over-crowd some other territory to the detriment and loss of other beekeepers. The fruit, vegetable, seed, and general agricultural industries will likewise suffer because in those districts that permit the promiscuous broadcasting of poisons there is a lack of sufficient honeybees to pollinize their crops.

There is too much fighting going on in the world as it is, and it has been amply demonstrated that might does not make right or that the size of an industry does not justify the use of undemocratic or unethical methods that will cause injury to the rights and privileges of others. So it may be necessary to do a little more fighting in order to live in peace. The beekeeping and allied industries must follow the example set by the honeybee itself — cooperate to the fullest extent in preserving its unity that its members might continue to serve as useful servants in an orderly society.

Beekeeping in the Bahamas, B. W. I.

By W. Ivor Claridge

In the Bahamas, almost all the beekeepers and bees are on the Island of New Providence, where the town of Nassau, the Capital of the Bahamas, is located.

New Providence is a small island, 21 miles long and 7 miles wide, therefore the number of colonies of bees on the island must be limited. On the other islands, some of which are much larger than N. P., only a few scattered colonies are found, as well as some wild bees, or hybrids that escaped from earlier beekeepers.

Beekeeping does pay in the Bahamas and especially so when it is done on a diversified farm, i. e., along with chickens, cows, sheep, etc. There is no large scale beekeeping there. In some yards one might find 10 colonies and in the largest about 120 colonies. There are only 12 or 15 beekeepers in all and only two with more than 100 colonies.

There are no bee diseases in the Bahamas such as AFB. The bee moth is the only enemy the bees have.

Some beekeepers do their own queen rearing. Some use homemade frames and hives, while others use the standard hives, with frames and foundation. On the whole, only a few use all modern equipment.

The average yield per colony is about 72 lbs. per year. Much better results can be obtained and sometimes a colony might produce 200 lbs. or more per year. The small yield is the result of over crowding of pasturage. There are two main honey crops in the Bahamas—one during April, May, and June, and the other during September, October, and November. There is almost always some nectar for the bees to collect. The only time it is necessary to feed bees here is during two or three months after a bad hurricane.

The quality of honey produced during the early spring is by far the best. It is the time that we get the orange blossom honey, logwood, and white torch honey. These honeys, produced during April and May, are very light in color, thick, and have excellent flavors. But the rest, which is produced late in the year, is dark and of mixed flavors. The color of most Bahamian honey is from a very light amber to light brown. The bulk of honey produced here is collected from a number of wild shrubs and bushes and it is, therefore, almost impossible to distinguish any special flavor. Orange blossom honey is really the only one that can be easily distinguished from the others.

There are great possibilities for beekeepers on some of the larger out islands, which as yet have not been tried out by any beekeeper. But all honey produced, over and above a certain amount, must be sold in a foreign market, as the home market is limited to a few hundred gallons per year.

Since the war started most beekeepers have been giving or selling all their surplus honey to the War Materials Committee, to be sent to England, and since then, most beekeepers have been increasing the number of their colonies, as it looks as if there will be a demand for honey in England long after the war is over.

There are no beekeepers, associations, or clubs here and the sooner beekeepers work together, the better it will be for all concerned. They will then be able to ship all their honey after the war, under one head and by so doing they can secure an important foreign or export trade. At present beekeepers are not assisted by the Government in any way and all bee hive material must be ordered by the beekeeper as there is no place in Nassau where hive material can be bought.

Native boys can be hired as helpers for about $3.00 per week. With one boy a beekeeper can handle about 100 colonies. These colored boys soon get use to the bees, but they never become expert beekeepers. One thing that can be said about beekeeping in the Bahamas, is that the bees never let you down. You can always depend on them to give some results.

Bahamas, B. W. I.

OUR COVER

This is another view of the apiary belonging to Huber Burke, Omemee, Ontario. The first view appeared on the December, 1943, cover.

Beekeeping in the Army

By Ex-Sgt. Carl M. Teasley

A beekeeper in khaki. Ex-Sgt. Carl M. Teasley, in his home apiary near Apison, Tenn.

[Article received July 3, 1943.—Editor]

Had anyone told me on July 19, 1941, that I would have bees in the army with me within eight months after entering the service, I am sure I would not have believed that person. But have them I did: five colonies to start with and three increase made within three months, to make my total eight.

I was inducted at Fort Oglethorpe, near Chattanooga, and assigned to permanent duty at Stark General Hospital, Charleston, S. C. Before leaving Fort Oglethorpe, however, I was called before Major Lewis, then C. O. of the Induction Center, and questioned at length about bees, especially in regard to the mating of queen-bees. Major Lewis had found by looking on my questionnaire and trade examination papers that I had been a carpenter and beekeeper in civil life.

Talking on bees and beekeeping topics led to my gaining permission to keep bees on the Hospital grounds.

I'm sure that the then C. O. of the Hospital, Colonel Meister, now Surgeon General at West Point, heard of my desire to keep bees when some of the doctors I talked to mentioned them at "chow" time in Officers' Mess. To gain his permission to put bees on Post, however, I had to go through official channels and Lt. Friedland, Public Relations officer at Stark, helped me out on this score. I was called before him one day early in January when he said, "I understand you'd like to keep bees on Post. If you'll tell me about the number of hives you want to keep, where you want to put them, how soon you can get them, and all, I'll write a letter to Colonel Meister and get his Okay".

Ten days later I was told to go ahead with my project. The Colonel's endorsement on the letter is a simple "Okay." It reposes in the file room at Stark today.

I had five colonies on Post by mid-March. My first thought after obtaining permission to keep bees on the Hospital area was to try to bring or send bees from Tennessee to Charleston but Georgia and South Carolina bee laws hindered that. To locate local bees was a problem quickly overcome once I started acting. I wrote the Chamber of Commerce at Charleston and was given the address of the Commissioner of Agriculture who wrote both E. S. Prevost, Beekeeping Extension Specialist at Clemson College, and myself. Then Mr. Prevost wrote the County Agent at Charleston and myself. To finish the cycle the County Agent wrote a Mr. Murray and myself—then I bought my five colonies from Mr. Murray, being allowed to choose the colonies from about 80 he had. We hauled the bees onto the Hospital grounds late one rainy afternoon and placed them beneath a middle-aged pecan tree near the banks of the historic Ashley River. Moss-hung live oaks and pines formed a background, foreground, and sideground to my apiary site. From then on these bees worked under circumstances they had never before worked. They were "army" bees.

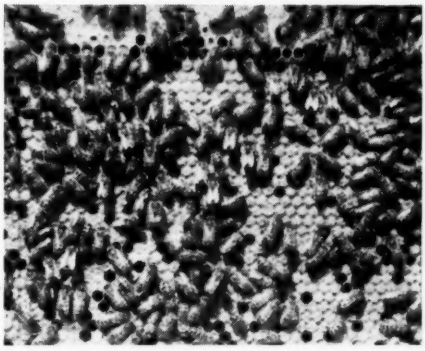
Spring opened just right for the bees and stayed that way. I had one colony that held 10 frames of brood by the first week in April. The honey flow was so steady during April that I bought extra equipment twice, getting five comb honey supers the second time. These were not placed on the hives until May, however, and were not drawn out until June, being filled during a two weeks' honey flow from cow peas sown in a field on the Hospital grounds. I requeened one

colony during April, giving a Caucasian queen to replace a failing dark Italian. My top colony really built comb and stored honey during the two-month period between April 15th and June 15th, and held a good 150 pounds at the end of the two months.

I attended meetings of the Charleston County Beekeepers' Association, joining their number in April as a private, and feeling proud to be the only member there in uniform. I attended the May meeting as a Ser-

A Caucasian colony.

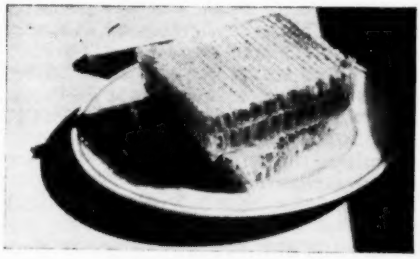
geant, getting a promotion in rank between meetings. It was during the May meeting that Mr. C. W. Carraway, County Agent, called me a "scribe" (because an article or two was published in a bee journal) and I was elected Secretary-Treasurer of the association. Mr. Prevost was present at each meeting and led in all discussions. Any association meeting is twice blessed with his presence.



The top part of the picture shows capped honey in a brood-frame but the rest of the picture shows only worker bees and worker bee capped brood. Such frames delight the eyes of good beekeepers. In good order like rows of infantry.

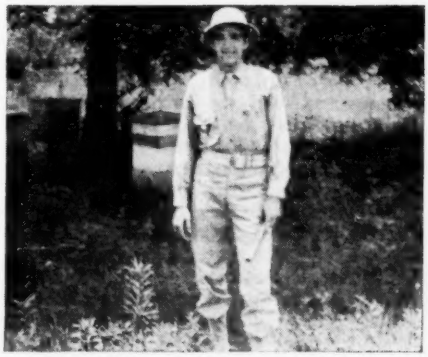
Surplus Honey Easily Disposed of

My honey crop was ready for disposal by the third week in June. Honey sources would be limited to coma, holly, gallberry, cow peas, and minor nectar yielding vines of the swamp areas bordering the Ashley River. Yellow jessamine and fruit bloom helped the spring build-up. I



Picture taken in ward kitchen. Natural sunlight coming through the window onto the table.

saw and felt my need of an extractor, jars, and pails that third week. Three full well-capped supers of honey were used as a food chamber on top of three divisions I'd made the second week. I used two Italian and one Caucasian queens to head my increase. All were strong colonies by the last of July. The remaining honey went out through various channels. My first sale made to an officer living on Post, was my boss, Lt. Colonel (Chaplain) W. W. Williams, a



An M. P. at Stark guarding the bees.

(Continued on page 35)

Nosema Disease

By Dr. C. L. Farrar
U. S. Bee Culture Laboratory, Madison, Wis.

Recent investigations have shown that Nosema disease is responsible for winter dysentery, weakening of overwintering colonies, spring dwindling, and abnormal queen supersedure. Some of the losses resulting from Nosema infections were formerly attributed to other causes.

The Nosema disease of adult bees has been recognized by American beekeepers for more than 30 years. According to White (1919) the parasitic protozoan causing the disease was first studied by Donhoff in 1857, but it was apparently forgotten until Zander (1909) revived interest and named the organism **Nosema apis.**

European workers have attached far more importance to Nosema than have American beekeepers. Except for White's (1919) contribution, to our knowledge, the disease has received little serious attention in this country. Like sacbrood, it has been accepted as a troublesome disease of minor importance, minimized by good beekeeping practice.

Workers in the laboratories of the Division of Bee Culture have been aware that Nosema was present at times in their experimental colonies, but they have been without means of measuring its importance. The characteristics shown by severe cases of Nosema which developed under greenhouse conditions in colonies used for feeding tests with pollen and supplements precipitated the extension of observations for Nosema in the apiary. Nosema was found to contribute substantially to both winter losses and queen supersedure.

The literature on Nosema presents many conflicting views relative to the season of occurrence, manner of spread, effect on brood rearing, and the length of life of infected bees. Because of this situation the present discussion will be limited to recent observations at the U. S. North Central States Bee Culture Laboratory at Madison, Wisconsin.

Nosema is neither a new nor a local problem. Since the United States Department of Agriculture established service for disease diagnosis, infected bees have been received from practically every State in the Union. Recent surveys have shown the disease to be serious both in northern and southern beekeeping regions.

Nosema infections are usually most serious from midwinter until May or June, yet infected bees have been found in colonies every month in the year. Under laboratory conditions it is difficult to inoculate bees in cages when they are held at brood-rearing temperatures (93° - 96° F.), whereas infections develop rapidly at room temperatures. This temperature effect may explain why Nosema is less serious under summer conditions when colonies are rearing brood heavily.

The infected bees do not die quickly but their lives are materially shortened and certain of their physiological functions are seriously affected. There are, however, many unanswered questions pertaining to Nosema disease that require scientific investigation.

Diagnosis

Infected bees often appear sluggish, and they may crawl from the hive entrance during the early spring and summer. Heavily infected populations do not support normal brood rearing. Under winter conditions the affected bees may be distended with feces although distention gives no proof of infection. Bees suffering from dysentery as evidenced by the discharge of feces within the hive are almost certain to be infected. The infected bees are most likely to be found on top of the cluster before the colony has opportunity for flight and from the snow following a flight.

Infected queens usually appear well filled out but they are sluggish. The queen usually stops egg laying suddenly just before she is superseded and sometimes the last eggs laid shrivel and do not hatch. Many colonies are slow in starting queen cells. This may be due to low viability of the eggs laid by an infected queen or to the abnormal behavior of an infected worker population.

Fairly certain diagnosis can be made from the gross appearance of the ventriculus. The ventriculus can be removed from the dead bee by grasping the last segment with forceps and gently pulling the entire alimentary tract from the abdomen. The ventriculus is the tubular-like organ located between the honey

stomach and the small intestine. The heavily infected ventriculus shows a swollen condition and an abnormal color. When it is macerated on glass and diluted with water, the smear will be milky white in distinct contrast to the one made from a healthy ventriculus.

Positive diagnosis can only be made by examining the macerated ventriculus with a microscope at a magnification of about 400 times. If infection is present, highly refractive oval-like spores are observed in great numbers. Where colonies suffer from dysentery, the feces will show spores but many infected bees may not show the spores in the large intestine.

Winter Losses

There is evidence that the majority of colonies may enter the winter period with some infected bees. Losses resulting from Nosema are influenced by the size of the colony population, by the percentage of bees that are infected, and by the length of time the bees are confined.

Strong colonies suffer less loss because they usually have more healthy bees to maintain the colony. Colonies with a large number of infected bees not only become weakened but the chances of the healthy bees escaping infection are reduced. Colonies that have their bees confined without an opportunity for winter flights retain the infected bees, which increases the chances of the other bees becoming infected. Colonies that have an opportunity for even a brief flight at intervals of 3 to 4 weeks during the winter tend to lose many of their infected bees. The distressed bees are first to fly from the hive and many are lost because they fall on the snow, thus reducing the infection potential of a colony.

Winter losses from Nosema result from the weakening of the population. In cases where the infection is high and the period of confinement long, the development of a condition of dysentery may kill the colony.

Spring Dwindling

Nosema disease may contribute to spring dwindling because the infection shortens the lives of individual bees and the infected bees do not support normal brood rearing. The lack of pollen may cause spring dwindling in a healthy colony but it is more serious in an infected colony because there are no young bees emerging to replace those dying at an abnormal rate.

Queen Supersedure

There is considerable evidence that the majority of package queens which commence egg laying and are superseded within the first 6 to 8 weeks are probably lost because they are infected. Apparently a few queens have been lost at introduction because they were infected. A few infected queens have been found dead in the cage upon arrival.

Where queens have been experimentally inoculated by feeding Nosema spores, some have been successfully introduced and a small percentage survived for 6 weeks. These surviving queens were laying only a few eggs, many of which were shriveled. When replaced with normal queens, the colonies increased brood production immediately.

Package colonies tend to show the effect of Nosema disease on brood rearing more than normal colonies and they are more likely to loose their queens from Nosema. The unbalanced population of package colonies during the first month makes it necessary for the original bees to feed both the brood and the queen. In the normal colony the daily emergence of bees tends to decrease the infection potential and at the same time provide healthy young bees to engage in brood rearing

Control Measures

Too little is known about Nosema disease to prevent all losses, but good beekeeping practice will help to minimize them. Strong colonies in the fall that are provided with an abundance of pollen and honey are usually capable of remaining strong because they rear sufficient brood to replace those bees lost from the winter cluster. Colonies that are provided with an upper auger-hole entrance and exposed to maximum sunlight have the greatest opportunity for occasional flights. A supply of fresh running water accessible to the apiary probably has considerable value in preventing the spread of Nosema.

Where package bees are used, reserve queens should be established in nuclei so that laying queens may be available to replace those lost from Nosema or other causes. Most package apiaries may require the replacement of from 10 to 20 per cent of the original queens. If the reserve queens are not needed, the nuclei can be built into colonies or they may be used to strengthen other colonies.

(Biblography on page 35)

Honey Will Stretch Ration Points

By Mrs. Benj. Nielsen

Delightfully flavored honey orange marmalade. — Photo courtesy Kerr Glass Mfg. Corp.

No matter what we plan for our three squares a day, sooner or later we come face to face with those pesky ration points or stamps. If they do not pop up with the basic ingredient of our recipes they are almost sure to confront us in the sweetening or flavoring items that point up our dishes.

Nutritionists urge the practice of selecting foods low in point value or requiring no points and presenting them to our families with various flavor changes to avoid menu monotony. In the flavor field honey is second to none. It is my firm belief that those good cooks who have learned to use honey in cooking have fewer cooking problems and headaches over point stretching. Honey will stretch those precious stamps fifty per cent, as in the case of cakes and cookies (sometimes it has a one hundred per cent batting average in these, too) to one hundred per cent in puddings, pies, frozen desserts, cereals, and beverages—to mention only a few. Once you begin in earnest to apply this liquid sweetness in making flavor changes for old favorite non-rationed items an unlimited field of possibilities opens up before you.

Recently in computing the amount of honey it would be necessary to save back to satisfy our own needs—selling the balance of the crop—we were amazed to find how much we depend on this particular class of food. Last spring when unfavorable weather delayed gathering of nectar, our supply was exhausted and we had to use sugar for the first time in many years. How flavorless foods seemed and how much more it took than when sweetening with honey. Truly when some blessing is removed, then we really learn to appreciate it, value it, as it deserves!

Now that jellies, jams, and preserves have been placed on the rationed list, no doubt honey will be even more in demand not only as a spread for bread but in making up the various fruity spreads the nation's sweet tooth has grown so fond of. The citrus fruits (still point free) combined with honey make delightfully flavored marmalades. Juices left over from near gallon fruits canned in water make excellent jellies when worked up with honey. Perhaps the recipes I have selected for this month will give you some ideas of your own.

Speaking of flavor treats have you tried a honey cocoa syrup for making hot drinks? We keep a jar on hand in the refrigerator. It is grand for a quick hot drink when the gang comes in from skating or bobbing almost stiff with the cold. And it has saved the day many a time when Junior asks (right in front of the would-be guest) if Sammy can "stay for supper" and I feel that the family meal I had in mind is not quite festive enough for company. This easy-to-make syrup is simply added to hot milk, in the cup or in the pan, as you wish. How much to add will be determined by how rich or sweet you prefer this beverage. It is handy also in preparing chocolate milk. It goes like this:

Honey Cocoa Syrup

One-half cup cocoa, ⅛ teaspoon salt, 1¼ cups boiling water, 1 cup honey and 1 teaspoon vanilla.

Place cocoa and salt in sauce pan; add boiling water gradually; mix well. Allow to cook 3 minutes. Stir in honey. Simmer 5 minutes. Remove from heat. Add vanilla. Cool. Store in covered jar in refrigerator.

May these help stretch those precious ration points:

Honey Orange Marmalade

Three whole oranges, water, juice of 3 lemons and honey.

Wash the oranges, slice paper-thin, and cut in pieces. Add the lemon juice. Measure the juice and

pulp, then add an equal quantity of cold water. Let stand uncovered for twenty-four hours. Boil uncovered for one hour; let stand for twenty-four hours. Measure and for each cup of fruit add ¾ cup honey. Boil slowly till jelly is formed. Pour into hot, sterilized glasses. Will make 8 to 10 glasses of mild, clear jelly with fruit suspended in it.

Honey Pinecot Jam

One pound dried apricots, 2 No. 2½ cans broken slices pineapple, and honey.

Wash apricots and cut in pieces. Soak overnight in the syrup drained from the pineapple. Dice pineapple and combine with apricots. Measure and add ⅓ cup honey for each cup of fruit and juice. Cook over low heat until thick and transparent. Seal in hot, sterilized glasses. Makes 10 6-ounce glasses.

Honey Prune Conserve

Two pounds dried prunes, juice of 4 oranges, 2¼ cups honey and two cups chopped walnut meats.

Halve the prunes and remove the pits. Add orange juice and honey. Cook slowly until thick and clear. Add nut meats. Seal in hot, sterilized glasses. Makes six 6-ounce glasses.

Honey Jelly

Two and ½ cups honey, ½ cup water, ½ cup Certo. (Liquid pectin.) Combine honey and water. Bring just to boiling point, heating very slowly to prevent scorching. Remove from fire, add pectin slowly, stirring constantly. Pour at once into clean, freshly sterilized glasses.

Honey Plum Jelly

Three cups plum juice, 3 cups honey, ½ cup lemon juice and 1 box dry pectin.

Combine juices, add dry pectin, stirring vigorously. Bring to boiling point and stir in the honey. Cook to jelly stage, skim and pour into hot sterilized glasses.

All-Bran Honey Wafers

One-half cup butter or shortening, ½ cup honey, ¼ cup Kellogg's All-Bran, 2 cups sifted flour, 1 teaspoon soda, ½ teaspoon cinnamon, ¼ teaspoon cloves, and ¼ teaspoon allspice.

Boil butter and honey together for one minute; cool. Crush All-Bran slightly. Sift flour; measure and sift with soda and spices; add to first mixture with the All-Bran; mix thoroughly. Chill. Roll dough on floured board to about 1/16 inch thickness. Cut with floured cookie cutter; bake on greased baking sheet in moderate oven, 350 degrees F., about ten minutes. Five dozen cookies. Dough is excellent for cutting fancy shaped cookies because it holds it shape.

Here is an excellent recipe which is included in the leaflet "Fortified with Honey" put out by the American Honey Institute, Madison, Wisconsin.

Lunch Box Cookies

One-half cup shortening, 1 cup honey, ½ cup brown sugar, 2 eggs, well beaten, 3 tablespoons milk, 2½ cups flour, 1 teaspoon soda, ½ teaspoon cinnamon, ½ teaspoon allspice, 1 cup seedless raisins, 1 cup currants, 1 cup dates, and ½ cup nutmeats.

Cream shortening, add honey and sugar, then well beaten eggs, milk, dry ingredients, fruits, and nuts. Drop from teaspoon upon a greased cookie sheet. Bake at 400 degrees F., for 10 to 12 minutes. Makes about 7¾ dozen.

Aurora, Nebraska.

All-Bran honey wafers.— Photo courtesy Kellogg Co.

Simple Method of Rearing Queens and Requeening

By M. J. Deyell

During the season of 1943, we tried out a method of rearing some extra queens at one of our commercial honey producing apiaries in western Ohio. It was so satisfactory that we are going to pass it on.

There really isn't much to it, in the way of equipment, except to have some extra single-story hives with combs at the side of the apiary, in a convenient spot. The hives we use are double queen mating hives like those used by the late Mel Pritchard. Anyone can have them. Each ten-frame hive has a tight fitting division board in the center. **This is the only extra equipment needed.** The inner cover is cut in two and the two halves fit to the tight division board which extends ⅜ inch above the lower side of the inner cover. It is necessary to plug, with wood, the small spaces that occur at the sides of the tin rabbetts. The entrance to one side or compartment faces one direction and the entrance to the other compartment faces in the opposite direction. These entrances may be provided for when assembling the bottom board. We use the ⅜ inch side of the bottom board, thus reducing entrances down to smaller dimensions than would be the case if the ⅞ inch side of the bottom board were used. We like to have about a dozen of these double queen mating hives at each commercial yard which allows for rearing about 24 queens.

Very Little Labor Involved

As we check through an apiary during late May or early June, we may find a colony that is very populous and perhaps has some supersedure cells. When a colony is superseding its queen at that season of the year, we remove the old queen and introduce a young laying queen from a Southern breeder, because we want a laying queen in the hive as soon as possible. Provided the stock is good, we take a comb of brood with the supersedure cells and adhering bees and place it in one of the mating hives. Bees from another comb of brood of the same hive, with plenty of young emerging bees, are shaken into the mating hive containing the comb with cells. All the old bees will return to the parent hive. We have an empty comb on one side of the comb containing the cells, also a comb with some honey on the other side. The entrance to this mating hive is reduced down to small dimensions. When these mating hives are made up during a honey flow, there is little danger of their being robbed out.

As we check through more colonies, we may find a very strong colony that is making preparations for swarming. We may find some nice cells that are not yet capped over. If the colony is extra populous, we may make up two nuclei in mating boxes from this strong colony in the manner just described, being sure to put plenty of young bees and honey in each compartment. Removing cells, brood, and bees from a populous colony ready to swarm is a swarm control measure. Care must be exercised in handling combs containing queen cells that are not capped over. The queen larvae are easily injured in unsealed cells. Sealed cells may be handled in the ordinary manner without much danger of damaging the queens.

Direct Introduction of Queens

It is well to have a system of record keeping for each nucleus hive. In due time, barring unfavorable conditions for mating, most of these mating hives will contain vigorous young queens. It is well to permit the queens to lay for a time, if possible. The next time the commercial apiary is checked, we are likely to find some queenless colonies or perhaps colonies with failing queens. Each failing queen should be destroyed and the colony left queenless for at least three to five hours or until the colony realizes its queenlessness. Two frames of brood with queen and adhering bees are then lifted out of a queen mating hive and placed in the center of the brood chamber of the queenless colony. The two combs which are removed, to make room for combs with the queen, are put into the mating hive or exchanged for the combs taken out. It is well to have at least one comb with some eggs or larvae in the mating hive in order that a new queen may be rear-

ed in the event that a cell is not available.

A queen that is laying eggs normally is more likely to be accepted than is a young queen that has traveled in a mailing cage for a number of days, and is dried up and runs around like a virgin queen. It seems that a laying queen with two combs of brood and bees is protected from the bees in the queenless colony by her own bees until the new queen, bees, and brood have acquired the odor of the colony. There may be, and doubtless are, honest differences of opinion on this matter.

If an undesirable young hybrid queen is found and removed it may be more difficult to introduce by the method described. However, if there is a fairly good honey flow on, this method will work in the majority of cases. If little or no honey is coming in, the queen should be placed in a cage with a little candy in the end to permit the bees in the colony to get acquainted with her before she is released from the cage.

If, perchance, all of the queens in the mating boxes are not needed during the season they may be permitted to lay until about October 1 in this latitude. Each compartment will hold five combs although we rarely put in more than four. In the fall the division board may be removed from each nucleus hive containing queens and one of the entrances closed. One of the queens in each double mating hive will be disposed of by the bees and the other retained. The nuclei will unite, making a fair sized colony for increase.

We find that queens produced by this method are satisfactory, the equal of, and sometimes better than queens purchased from breeders. It is a convenience to have some extra queens on hand in each apiary when needed. This simple method gets away from grafting young larvae into artificial queen cell cups, also other manipulations which are rather technical for the average beekeeper.

NATIONAL BEEKEEPERS' CONFERENCE, MORRISON HOTEL, CHICAGO, JANUARY 11-12-13

Mr. James Gwin, Madison, Wis. Pres. American Honey Producers League, presiding

10:00 a. m. Mr. Harold Clay, Washington, D. C. Topic-Government Orders Concerning Beekeepers.

11:00 a. m. Mr. J. B. Hutson, Associate Director War Food Administration. Topic-Government Viewpoint On Placing A Floor Under Honey Prices.

Open Discussion on Floor Prices.

12:00 M. Organization luncheon meeting of delegates from each State Beekeepers Association. Delegates are the nominating committee. H. J. Rahmlow, Madison, Wisconsin, Chairman Organization Committee presiding.

2:00 p. m. Jas. I. Hambleton, Washington, D. C. Beekeeping Research Recent Accomplishments and Future Needs.

2:30 p. m. Mr. Walter F. Straub, Washington, D. C. in charge of Food Rationing, OPA. Topic to be announced.

3:00 p. m. Mr. Lewis White, Beekeeper, Portland, Oregon. Topic-The work of the Honey Industry Advisory Committee, Accomplishments and Duties.

3:30 p. m. Mr. Alan Root, Medina, Ohio. Topic-How The Beekeepers' Supply Industry Committee Will Help Our Program.

4:00 p. m. Topic-Floor Prices For Honey From The Producer's Viewpoint. Speakers to be announced.

EVENING

Open For Committee Meetings.

WEDNESDAY, JANUARY 12

9:00 a. m. Meeting of Delegates from State Beekeepers' Associations.

Mr. Henry M. Bain, Washington, D. C. Topic-Future Needs of Beekeepers Organizations.

Report from each State Delegate. Limited to 5 minutes each

Election of Officers.

Adoption of Constitution.

Appointment of Committees.

Development of program for 1944 for the National Federation of State Beekeepers' Associations. Advisors, Dr. Jas. I. Hambleton and Dr. E. F. Phillips.

OTHER MEETINGS, WEDNESDAY A. M.

9:00 a. m. Meeting of Officers and Committee of the National War-Time Council.

MEETINGS OF OTHER BRANCHES OF THE INDUSTRY.

WEDNESDAY P. M.

1:30 p. m. Joint meeting of Producers and Allied Interests.

John Holzberlein, Jr., Grand Valley, Col. beekeeper and former president American Honey Producers League, Topic — Honey Production for the Future.

2:00 p. m. Reports of forenoon meetings. Plans of the National War-Time Council. Discussion of Joint Program.

EVENING: Committee Meetings, to be announced.

THURSDAY, JANUARY 13

Committee meetings to complete plans of work for 1944.

Unfinished business.

Further program to be announced.

Notice: All meetings will start on time.

Submitted by H. J. Rahmlow, Madison, Wis., Chm. Organization Committee.

[It is sincerely hoped that this national meeting may be well represented by a cross section of our industry, also that accomplishments may justify time and effort expended. Our industry has many problems which must be solved.—Editor.]

From the Field of Experience

A FRESH AIR COLONY

By C. H. Huey

Many beginners have asked if bees ever build combs out in the open. Here is a picture that portrays more graphically than anything one might

They survived the winter.

tell them. A large swarm of bees was taken from these combs. The colony had been on the tree more than a year and survived a hard winter. I can't imagine how long they might have stayed—but they deserved and got a better home.

Waycross, Ga.

• • •

A HOBBY THAT PAYS!

By C. O. A. Kramer

For many years I played at the noble game of golf. I bought woods and irons to improve my game; golf balls by the gross. Every time I bought a new club I also had to buy the Mrs. something in wearing apparel. It was an expensive hobby, although it kept me out in the open air and maintained my health at par.

Then, in early spring about five years ago I purchased a package of bees. Like all thrifty housewives, the Mrs. figured, when she saw me bringing home hives, frames, supers and foundation, that here was another hobby where she could work in on the expense account to her personal advantage. For a while I thought so myself. But this happened to be one of those years with a good, long-drawn-out nectar flow and, as I had provided myself with some choice bee literature, I had no difficulty in securing a bumper crop of honey which, when disposed of among my friends and neighbors, more than took care of my outlay at the beginning of the season.

Having kept strict account of income and outgo I was able, at the end of the season, to convince even the thrifty Mrs. that here was a hobby that paid its own way in addition to providing a most delectable addition to our larder. We used more honey on the table and in cooking and baking that year than we had used in the previous twenty years. Even the Mrs. took pride in saying to the members of her bridge club "try some of this honey from our own bees."

When my boy, who was about fourteen then, wanted some extra spending money, he would put a half dozen jars on his bicycle and make the rounds of the neighborhood and sell it without trouble. I allowed him to keep half of the money he took in, using the other half for additional equipment.

Having kept accurate records since I started with bees I have always been agreeably surprised to find that you can not only have fun with your bees and enjoy the open air and mild exercise, but also that the bees more than pay their own way. True, some of the makers of bee equipment give us little stories of how Bill Jones sent his daughters to college with the proceeds of the sale of honey from a half a dozen hives, but that usually is taken with several grains of salt. It is considered part of the advertising "hokum." You read about it, smile to yourself, and pass on to something else.

For the benefit of beginners or amateurs like myself, I will give

you the story of one hive in my little apiary, hive No. 10, of which I have kept an accurate dollars and cents record. Here is the original outlay charged to this particular hive:

Complete hive with frames,....$	3.45
3-lb. package Caucasians, ...	3.75
2 FD supers with fixtures,.....	3.20
2 Comb supers complete, ...	2.90
Foundation for hive and supers,.	3.22
250 honey boxes, ...	3.60
Total expense, ...$	20.12

Here is the credit side of this same hive up to the present date, August 20, 1943:

150 perfect sections sold	@ 25c	$ 37.50
18 imperfect sections	@ 10c	1.80
		$ 39.30
Deduct cost of 168 cartons.		1.68
Net proceeds, ...$		37.62

From the above ledger account you can readily see that hive No. 10 shows me a profit of $17.50 over and above all expense. I still have all my original equipment clear and paid for; I have a nice swarm of hustling bees and, when I put on a full-depth super as a food chamber in the next couple of weeks (this was written in late August, 1943.—Ed.) hive No. 10 is all set for the season and, I hope, will be ready next spring for a bigger and better year.

Thus you see that we amateurs can not only enjoy the pleasure of a hobby and have our fun, but we can also make our hobby pay its own way.

River Forest, Ills.

• • •

INTEREST IN CAUCASIAN BEES INCREASING

By Dr. E. F. Phillips

The increase in interest in Caucasian bees is evident, and apparently this is more marked in the western areas than in the East. I noted in your August editorial that you draw a distinction between Soviet bees of the Caucasus Mountains and the adjacent plains, and that is proper, for they are entirely different. It seems entirely clear that the Caucasians now in this country are more variable than well selected Italians, and I have rather strong suspicions that the stock used by breeders is mixed already, which may account in some way for the variability manifested.

There is one phase of the Caucasian question that may be emphasized, namely, the impossibility of getting more breeding stock at present. Even after the close of the war, there may be equally grave trouble. In the first place, all imported breeding stock must be shipped through Washington in the effort to avert importation of acarine disease. Secondly, the Nazi invasion toward the southern Soviet oil fields went right through the area where these bees are native, hence it may be some time before things are settled down enough for breeding selections to be made there. Thirdly, we would want to be certain that the Soviet government is really using Caucasian stock for the material sold. It is obviously impossible to buy queens from any individual, and all sales are through the government. I emphasize this last point because in 1932 they were selling as "Caucasians" queens mated in the plains area north of the mountains, where the native bees were holy terrors. This we must not blame on dishonest practice but solely on ignorance. I am not suspecting that this ignorance will suddenly disappear at the close of the war, especially since most of the best qualified men of the Soviet Union will no longer be alive. In short, whatever advocacy of Caucasians may be justified, we must for perhaps years to come depend solely on stock already right here in the United States.

Ithaca, N. Y.

• • •

A SNAKE STORY

By J. Donelson Jones

A man, regarded as a truthful man by this community, told me the following interesting and unusual story.

Two common homemade box hives were built and swarms put in them. The hives were made with very small entrances.

For two years one colony made honey, the other made none. Finally he decided to investigate and found a large dark blue snake in the hive. The snake could have gotten in only when very small but was now about 2½ inches in diameter and about three feet long. It's eyes were white (supposedly from the continued darkness). It had a pathway in the form of a circle cut through the wax, this circle coming near the top, sides, and bottom.

The snake was killed and when cut open or rather when his head was cut off, fluid that seemed to be honey ran freely from him.

Lebanon, Ky.

[Note: The fact that Mr. Jones is a minister of the gospel should tend to add authenticity to this story.—Editor.]

THE SMALL PACKER OF HONEY

By Lloyd C. Gardner

Referring to your editorial in December Gleanings we, too, have been getting "messes" from producers which they call honey. All of it is a mixture of capping melter honey on which we are expected to pay ceiling prices. And if we do not take it in at the ceiling, there are plenty of takers and plenty of consumers who will. So we are doing the thing all the rest are doing, namely, taking it in—but—we are putting most of it into bakery honey.

It worries me quite a lot to see producers heating their honey to prevent granulation. I have a perfectly good lot which was heated from which I received a sample right after the lot was extracted. Today that lot is several shades darker and still liquid. We have had this experience with certain individuals who are good conscientious honey producers and who believe that they are doing the right thing. Some of them we have tried to convince that they were doing the exact opposite of what they should to have a good bottling product. And some have taken our word for it. Others have disregarded all that we have said.

Delaware, Ohio.

• • •

GLUE FOR ASSEMBLING FRAMES AND SUPERS

By Charles J. Koover

The season is over and beekeepers will now have time to assemble their new frames and supers. One always speaks of **nailing** frames and supers. Modern frames are advertised as having lock-cornered joints to hold them square and rigid, while supers are nailed with cement coated nails to hold them tight and square also.

Unable to purchase modern lock-corner frames locally, last year I struck upon the idea of applying a little waterproof glue to each joint. It has proven to be very satisfactory as it is impossible to get any movement out of frames or supers so assembled. It takes but little time to daub some glue into each joint.

Waterproof Casein glue is not affected by heat or moisture and it holds so tightly that it will not let go at the surfaces which were glued together but will break at some other place when put under stress.

Altadena, California.

BEES

I think that I shall never see
An insect like the honeybee;
A bee whose hungry tongue is pressed
In nectar plants both East and West;
A bee that may in Summer bear
Her load of sweet from, who knows where;
A bee that flies through space all day
And never loafs along the way;
Honey is food for fools like me
But it is made by just a bee.

John V. Wilbanks.
Sarasota, Florida.

(Written as a parody on Joyce Kilmer's poem "Trees.")

• • •

ONE MAN'S OPINION
On Light and Dark Honeys

For ages, controversy has raged over the question of whether light honey is superior to dark, and the other way round. The simple answer is, that it is only a matter of taste.

George Bohne, in an article in the November Beekeepers' Item, has a scheme that definitely would settle the question. The solution is to pack both kinds, offer them side by side, and let the public have what it wants. The difficulty seems to be to persuade the packers to try it out.

Possibly they are justified in refusing to take a chance. After all, they are in business to make money. We have not yet reached the stage when we voluntarily spend our own money to make experiments for the other fellow's benefit. That is only done when we spend the other fellow's money. But if one of them were to screw up his courage to the point where he would try out such a scheme, the public would answer the question clearly and decisively.

Another difficulty is that different sections of the country prefer different kinds of honey, regardless of color. The packers, trying to work on a mass production basis to keep costs down, must hold to a more or less middle course. They have to try to please everybody. For them to put on the market four or five different honeys would complicate their inventory and sales problems to the point that they would need many times the capital that they now have.

A nationwide clearing house, working in conjunction with the A. H. I., would be an answer to that problem. The complications of ob-

taining an efficient management that would be satisfactory to all concerned is quite another story. If we can't get together in a big way for the purpose of boosting our produce, how would we be able to form a management to distribute the result of our labors? Supposing we were able to organize, and operate, a gigantic honey cooperative covering the nation. We would then be a monopoly, and you know what happens to monopolies that are not sponsored by the government.

Because of the nature of the product, honey must always be handled by localities. While we can and will have some big packers with nation-wide distribution, there will always be a field for the smaller fellows with their localized trade. It does no good to "beef" about the big fellows shipping light honey into regions where honey is dark. If they could not ship it in and sell it at a profit, they wouldn't.

The answer is for fellows in the darker regions to unite and educate their public to like the taste of their honey. Remember, if it doesn't sell, the shippers don't ship. And if honey is selling at 4c in one place, the law of gravity, or economics, or what have you, will cause it to flow to the place where the price is high.

So, the simplest way to get downstream in a hurry is to get out in the channel and swim with the current. Only the game fish swims upstream, but who wants to be a poor fish?

CAUCASIAN BEES IN TOWN

By J. N. Balleydier

Bees can be kept in town if properly handled. Neighbors will not be afraid when they see you work with them, if the bees are gentle.

You may ask what kind of bees are gentle. My experience has taught me to keep the Mountain Gray Caucasian race. I have such bees on a roof of a double garage in a suburb, south of Denver, Colorado. These bees will often gather 30 to 90 pounds of nice surplus honey per colony.

Bees on a roof will fly in and out at roof height, and not bother anyone passing by. I would not advise keeping too many colonies on such a roof.

Caucasians will gather surplus honey under adverse conditions. They will work when the weather is too chilly for other races of bees to venture out. They winter well, in fact, I do not pack my bees and they come out in very good condition.

The queens will start laying at the right time to insure an abundance of young bees, when the flowers begin to bloom. Caucasian bees will not swarm if given enough room for queens to lay, and enough room to store honey.

Friends who have secured Caucasian queens from me are very enthusiastic in their praise of them. Caucasian bees cap their comb honey white and will produce more comb honey for me than other races.

Englewood, Colo.

Caucasian bees on the roof of a garage in a town.

SECOND GLANCES

By C. M. Isaacson

Experiments in wintering are always of value, and when carried out by men versed in careful research work, results are doubly worth while. Despite the short period covered, the experiments reported by Mr. Anderson bring out several points of interest (page 681). That abundant honey stores are a factor in maintaining an even temperature has been mentioned before by several. The fact that unpacked hives had a greater temperature range than outside is a point to take note of, as is the small loss of heat from a top entrance (I use an extreme top entrance for winter, and have reached similar conclusions—but close all other openings in this much colder climate). The mention that packing is more to be preferred in regions where there is little opportunity for frequent winter flights anyway, sounds reasonable. But just a word, will the experiments arrive at the same results if the hives are tenanted, as with the empty hives used?

Data on honey plants concerns every beekeeper. Mr. Willson gives several facts which we all should give serious thought to—reduction in clover acreage due to disease and stress on other crops, and the large amount of research towards finding other honey plants that Mr. Pellett is carrying on. We must have bees, bees must have forage, making the suggestion for a broad program of honey plant research one to be carefully considered (page 684).

Beekeeping in Argentina seems to be a matter of meeting unpredictable conditions. Variations of six to eight weeks in honey flow time must present quite a problem in having bees ready, and keeping them in that condition. The heat factor probably is not strange to our Southern beekeepers (altho fall in April certainly would be!) but the standard of one full and three half-depth bodies per hive would be unusual here. In regard to the method used in freeing filled supers of bees, will the very **young** bees leave quickly? (p. 686).

Mrs. Nielsen's holiday recipes mean good things to eat—candy, cookies, pudding (page 688). They are all good and "something special". Incidentally, for the benefit of those who do not have it, why not repeat the recipe for honey divinity some month, Mrs. Nielsen? It is extra good — and simple — even I ("just a man") succeed with it.

Real top entrances have strong adherents, so they must have their advantages. Manuel Calvache presents a well written case in its favor (page 690). His description of a simple winter entrance sounds somewhat like that described by Mr. J. F. Norgren some years ago. Perhaps Mr. Norgren will tell us if he still uses it in its original or a modified form.

Smokers and autos. Sometimes we hear of less favorable comment in this connection than Mr. Amos' item (page 691)—the car or truck starting to burn instead of starting to run. The hint is a good one, but might be hard on the smoker.

An increased demand for honey (perhaps it could be phrased a "total" demand) in the face of **no** real sugar shortage adds up to one thing —more public interest in honey. One Man's Opinion is right, the continued work of the **Institute** is bearing fruit in convincing fashion.

"Costly bargains" might well be the paradoxical title of C. O. A. Kramer's piece on page 692. Always make sure that the source of the bargain is reliable — and — be sure **that you** have the "know how" to make use of it. Those concluding words should be on every beekeeper's desk, "do your planning **before** you go out to the hives".

Loss from fire is always a disheartening thing. Walter Brandenberger was fortunate in saving so much of his apiary (page 694). If his conclusion that the paint aided in keeping the hives from catching fire is correct, he has brought out a point not generally known before.

The "two legged weevil" is a real threat to beekeeping and agriculture as a whole. While Mr. Killion puts it in somewhat strong terms, yet the very real disappearance of sweet clover in too many places will cause definite harm to all. The remedy? Perhaps a renewed campaign of education as to the value of growing the clovers (page 698).

"No AFB thru foundation" is very good news (page 701). If further experiments substantiate this early conclusion, beekeepers can breath easier over the danger that wax rendered from diseased equipment will spread the disease (which wax may come in more freely now with the increased demand).

Honey and Beeswax Production - 1943

In 1943 4,901,000 colonies of bees produced about 189,049,000 pounds of honey and 3,750,000 pounds of beeswax. These estimates are based upon reports to the United States Department of Agriculture from beekeepers producing about 15 per cent of the 1943 honey crop and relate to all bees—those owned by farmers and by townsmen, apiaries for home supplies and large holdings for commercial production.

Production was low in comparison with recent years but above the short 1942 crop of 177,833,000 pounds. The cold wet spring, late delivery of package bees, shortage of labor and the delay in obtaining or lack of adequate sugar supplies for winter feeding were major factors accounting for the low yields and consequent low production. The average honey yield per colony of 38.6 pounds compares with 36.3 pounds in 1942 and with the 3-year (1939-41) average of 44.0 pounds. Honey yields per colony were higher than last year in all Geographic areas of the country except the West North Central and South Atlantic areas where yields of 47.7 pounds and 24.1 pounds per colony were produced respectively compared to 57.2 and 27.0 pounds in 1942.

Total production of honey was also greater than last year in all areas except the West North Central and South Atlantic areas. Both of these areas experienced a late, cold, wet spring followed by a dry summer which resulted in loss of bees and a poor growth of honey plants. Weevil damage to sweet clover was serious in the northern part of the West North Central area, and much sweet clover was replaced by grain and soybeans.

There were 4,901,000 colonies in 1943 or practically the same number as last year. The number in November was about 7 per cent larger than the number on hand at the beginning of the main honey flow. Considering the average winter losses which ordinarily exceed 7 per cent, a heavy spring increase in colonies will be necessary if present number of colonies is to be maintained or increased next year.

Total beeswax production was about 12 per cent above the 1942 production. Producers have been responding to the need for more beeswax by deeper capping, and by saving of burr and old comb.

Producers reported in early November that they had on hand for sale 17 per cent of their entire 1943 production of honey and 52 per cent of their beeswax production compared to 23 per cent and 46 per cent respectively at the same period in 1942.

Average stores per colony for the 1943-44 feeding season were reported at 41.5 pounds, ranging from 30.5 pounds in the South Atlantic area to 49.7 pounds in the West North Central area. Reporters' comments indicate that more adequate stores of honey were left on the hives in 1943. Last year the high prevailing price of honey caused many producers to extract too closely and as a result when hive stores ran low many colonies starved and the remainder came through in poor condition. Under OPA regulations sugar for feeding bees was available but in many cases the delay in obtaining it or the inability of beekeepers to procure sufficient supplies resulted in losses.

Beekeepers received an average of 16.8 cents per pound for all honey sold from their 1943 production compared with 13.8 cents per pound in 1942. Both wholesale and retail prices received by beekeepers for sale of comb, extracted, and chunk honey in assorted packages are included in these averages. Combined sales of comb, extracted and chunk honey at wholesale averaged 14.2 cents per pound and retail sales averaged 19.9 cents in 1943 compared with 12.0 and 16.0 respectively in 1942.

Extracted honey in wholesale quantities returned beekeepers an average of 13.7 cents per pound for the 1943 season to date, 2 cents more than in 1942 and more than in any year since 1920. Regional averages ranged from 15.3 cents per pound in the West North Central region and 15.2 in the North Atlantic to 12.5 cents in the West. Smaller retail packages of extracted averaged 19.0 cents per pound in 1943 compared with 15.4 a year earlier. Comb and chunk or bulk honey prices showed advances of approximately 4 cents per pound over the previous season.

The 1943 season average price for beeswax at 41.4 cents per pound returned beekeepers in the United

(Continued on page 30)

Editorials

That we need more honey is so obvious that such a statement seems unnecessary. Contrast the present situation with respect to the scarcity of honey, with what we had a few years ago. At that time beekeepers were wondering what they would do with their surplus honey. Now, packers are at their wit's end to know where to buy honey. Let us hope the coming season may be favorable for honey production. Our industry needs more honey, also more bees and beekeepers.

• • •

Standardization of Five-gallon Can Caps The Cook - Du Page Counties Beekeepers' Association, also the Illinois State Beekeepers' Association, at their recent meeting, adopted a resolution made by Adolf S. Carm of Chicago, favoring the two and one-half inch screw cap as the standard size for the five-gallon can.

This resolution, if adopted, would save an endless amount of trouble and expense. As Mr. Carm points out, it is maddening to have some perfectly good cans but no caps to fit them.

If beekeepers' associations over the country would make this standardization of can caps one of their projects progress would doubtless be made. Gleanings favors such a move.

• • •

Air Conditioning and Refrigeration for Packages and Queens G. G. Puett, Hahira, Georgia, one of the largest bee and queen shippers of the South, appearing on the program of the Ontario Beekeepers' Association meeting in Toronto recently, mentioned keeping packages and queens in refrigeration from the time they are put into cages until ready to ship. Bees thus held in a cold room for twenty-four hours arrive at destination in better condition than bees shipped directly after being put into shipping cages.

Mr. Puett believes that in the near future bees will be shipped from the South to the North, through the air in large air - conditioned transports that will deliver the bees directly to the apiary. What a saving in time that will be. It should result also in fresher bees.

Beeswax Production, according to the Government report, page 19, is 12 per cent above that of 1942. Honey production in 1943 increased about six per cent over 1942. Apparently the methods of saving and producing more wax advocated through various mediums did actually result in more production. Let us hope the 1944 production of both wax and honey may increase materially.

• • •

Beekeeping Has a Future These are momentous days. Things we supposed a few years ago couldn't happen, have happened. History is being made rapidly. Those of us who try to do some straight thinking and maintain a sensible and sane philosophy of life believe that in spite of the tyranny, the lust for power, and the consequent pain and misery now prevalent throughout the world, that tyrants will be put down and **right will eventually prevail.** It could'nt be otherwise. That is a law of life.

During the present world conflict, agriculture is playing an important and essential role. We need food. There is a saying that armies and navies travel on their stomachs. **We must produce food and more food** to win this war. An abundance of food will be needed during the period of reconstruction and rehabilitation following the war.

Here is where beekeeping, an important branch of agriculture, enters the picture. As beekeepers we may be so close to our business that we fail to realize its importance. To get a true picture of beekeeping in relation to agriculture and food production we must get a bird's - eye view to have the proper perspective.

Bulletin E-584, entitled, "The Dependence of Agriculture on the Beekeeping Industry — a Review," put out by U. S. Department of Agriculture, Washington, D. C., in December, 1942, contains the following:

"While the honeybee is the only source of honey and wax, its principle role is in the pollination of the many agricultural crops for the production of seed and fruit. Without the help of insects to effect pollination, many species of plants will not set seed or produce fruit. At least 50 agricultural crops depend upon honeybees for

pollination or yield more abundantly when bees are plentiful. It may be necessary to subsidize the keeping of bees since there is no practical substitute for honeybees in the transfer of pollen from flower to flower and plant to plant.

"As a rule, honeybees visit the blossoms of only one plant species on each field trip, while most other insects frequently shift from one species to another. For this reason no other insect compares favorably with the honeybee in pollen distributing activity."

Since honeybees are so essential in agriculture and since more bees are needed for pollination purposes and to increase honey and wax production it would seem that our industry should progress rapidly during the years ahead.

• • •

Does Pressure Filtering Remove Vitamins in Honey This has been argued pro and con. Dr. M. C. Tanquary and his associate, Dr. M. H. Haydak, have been doing some work which shows that there are vitamins in honey although the amount is not large. We submitted this question to Dr. Tanquary. His reply is so very fair and logical that we take pleasure in submitting it to our readers.

There are small and variable amounts of vitamins in honey. Analyses of filtered honeys have shown that in every case there is a reduction in the amount of these vitamins, the amount of the reduction depending upon the degree of the filtration. I believe that all of us interested in honey felt that the discovery that honey contains vitamins gave an additional significance for us for honey as a food. Now it is a question as to whether the loss by filtration of a percentage of the vitamins is serious enough to overbalance the supposed advantages gained by having a clear product for the market.

The vitamin content of honey is rather low and the amount which is removed by clarification would scarcely influence the status of nutrition of an individual consuming an adequate diet. The short circular sent out by the Director of the American Honey Institute on "The Vitamins in Honey" gives a very good illustration of this point. In our opinion the clarified honey should be labelled as such and it is up to the consumer to decide whether he prefers to purchase the clarified or unclarified honeys. The fact that white bread was much lower in the vitamin content than the whole grain product did not discourage people who liked the white bread. We believe that no honey producer, unless forced by some prohibitive action, will try to capitalize on the fact that there is a decrease in the vitamin content of clarified honey, so the fears and ill feelings among the producers who adopted the process of clarification are entirely unwarranted.

Let us take another parallel case. The big dairies all pasteurize their milk and put it in sealed bottles. While it may not have quite the food value of the raw milk the pasteurized is much safer in that the heat employed destroys all possible disease germs.

In the same way it is argued that pressure filtering restores honey to its original flavor as it came direct from the hive.

• • •

Keeping Bees North and South Twenty - nine years ago The A. I. Root Co. moved a carload of bees late in the fall to Ranletts Landing, 16 miles north of Apalachicola, Florida, on the river of that name. Hives were assembled during the winter months in anticipation of dividing colonies to make increase on the tupelo honey flow which began in April.

To make a long story short the carload of 300 colonies was increased to three carloads. Each was shipped north in early May, via river boat (the Mark Twain type) to Bainbridge, Georgia, then by rail in a 40-foot stock car to Medina. The trip took six days. The writer rode and slept in the car with the bees. They drank four 50-gallon barrels of water enroute, supplied by sprinkler can when the bees got to roaring during hot weather. Hives were screened top and bottom and arranged in tiers, on staging fastened securely. Water barrels were replenished periodically enroute.

The bees arrived in good condition and built up rapidly, in time to take advantage of the clover flow in the North during June and July. Many of the colonies were used to fill bee orders.

While the project was a success in some respects, it involved an enormous expense which made a net profit impossible.

Since that time others have tried and are trying wintering bees, also themselves, in the South. There is something intriguing about it all, especially getting away from the cold North winters and basking in Southern sunshine. The present shortage of gas and rubber puts a "crimp" in such a program.

Moving bees long distances is somewhat hazardous and expensive. It would seem to be more economical to order packages from reliable shippers and let them do the worrying connected with the production of queens and bees. Such work isn't all sunshine as some Northerners have discovered after they have tried it. —M. J. Deyell.

Spinster Jane Says

The New Year means different things to different people, but to everyone it means a new start, another chance to make good.

Our record book for 1943 is an unsightly thing, full of mistakes, marred by blots and tears. Let us put it away and become afflicted with voluntary amnesia. Only the weak and senile live in the past. Let us forget our years and keep young in spirit, looking ahead, not behind. If we march ahead, watching carefully for obstacles, traps, and treacherous spots in our paths, we can come through safely. The poet tells us how to judge our day when he wrote;

"When I sit down at set of sun,
And count the acts that I have done,
And counting, find one self-denying deed, one word
That eased the heart of him who heard,
One glance, most kind, that fell like sunshine where it went,
Then I can count that day well spent."

When winter comes it brings a time for relaxation to the beekeeper, although it may be well called a full time job. No work, though, is really pressing, and he can spread it through the entire winter. Of course, there are bee hives to repaint and clean up, perhaps some wax left to be rendered. He must see that he has everything shipshape for spring. But winter is his great chance to read all about the experiences of other beekeepers, if he would avoid the mistakes they have made. He can find many good books on beekeeping, and he should read these carefully. Old as the hills is the adage, "Whatever is worth doing, is worth doing well," and that, put into practice, spells success.

What of the women? The tiny workers in their winter black-out answer this question easily. They are not lazy, but they do only the necessary things. They generate heat to keep themselves warm, and they eat, when hungry, from the food they worked so hard to store away. Solomon describes the ideal wife and mother in this way.

"She looketh well to the ways of her household, and eateth not the bread of idleness.

"Her children arise up and call her blessed, her husband, also, and he praiseth her."

Times have certainly changed since then, or was Solomon describing the ideal husband? What woman would not work hard to hear one word of praise! Usually they hear from the good man in no uncertain words if dinner is late or if he is kept waiting, but praise is the x in the problem. The more civilized a nation becomes, the more consideration she shows her women. To-day, bit by bit, they are becoming regarded as man's equal. They are showing they can do his work, either in peace or war-work, and with their vegetables, fruit, etc., in the cellar, they, too, should relax and get ready for the burden of work to be shouldered in a few months. Writing cheery letters to our boys in the fighting forces, knitting them warm sox and mittens, these are simply recreation, and none must grumble because of food rationing. That is our self-denying deed.

People are still inquiring for honey. Many think the bees keep up their honey-making the year round. One man, seeing a beekeeper feeding his bees syrup, in the spring, warned his neighbors not to buy honey from him. "Why it will be half sugar! I saw him giving sugar to his bees!" Another lady, a few days ago, said, "Everyone says Honey Boy makes awful good honey!" So there you are. And we cannot preach bees and honey all the time. Anyway, they are interested only in getting their share of this honey, so unprecedentedly popular, these sweetless days.

When beekeeping becomes his job alone, Boy will rejoice. He loves the out-door life, and I am in hopes he will make just such a success of it as those others have, who can now spend their winters in the warm South. What a relief to see flowers blooming instead of waking to find the thermometer has reached 40 or 50 below zero. When well, the cold is exhilarating, but when the frost seems to reach to the marrow of your bones, the warm Southland beacons, and is not to be denied.

Happy New Year to Gleanings, its staff, and its readers, and may next anniversary of this happy day see the winning back of peace and good will o'er all the earth.

Talks to Beekeepers

M. J. Deyell

Hardly Know Where to Begin

This will make the tenth year I have written these talks. This hardly seems possible. It is a little difficult to know how or where to begin.

During the years, I have corresponded with and met thousands of Gleanings readers over the country. Some tell me they enjoy my talks. Of course, I wouldn't be human if I didn't appreciate such remarks. Others, apparently not so impressed with my efforts, spare me embarassment by remaining silent.

Others will say when I meet them at bee meetings, "Oh, yes, I knew it was you because I saw your picture in Gleanings".

Since I must say something, I usually reply, "Yes, my friend, if you once get a good look at my 'mug' you will never forget it."

One fellow said, after looking me over, "Well, you are not as good-looking as your picture". I had to agree with him.

A Word about How I Began Beekeeping

I left school at the age of 14. My mother wanted me to continue in school but I wouldn't. I knew it all, or thought I did. When I was 20 years of age I came over here from Canada. I began to realize what a "dumb-bell" I was, so I started to school from where I left off six years before. My schooling continued for five years. I then got a job with The A. I. Root Company in their manufacturing plant. One day, the apiary manager wished to know if I would consider work in the apiary. I hardly knew a honeybee from a wasp but decided to try beekeeping.

After a few weeks, I realized that I had met my life's work. I became so intrigued with bees that I frequently forgot about eating. That was serious. I never let bee work interfere with my meals nowadays, unless I happen to get into a "jam."

If I had it to do over again, I would have started reading and reviewing good beekeeping literature in order to get a solid foundation for beekeeping. I did some reading, but not nearly enough. I fear many beginners in beekeeping are making the same mistake I made. Since taking on the job I now have, in connection with Gleanings, I have had to burn some midnight oil reading beekeeping literature.

For the benefit of those beginning beekeeping this year, let me say that theory and practice go hand in hand in attaining success in beekeeping.

Once a Beekeeper Always a Beekeeper

The week before last, I went to the Ontario Beekeepers' Association meeting in Toronto. I have attended those meetings for seven consecutive years. During that time, I became acquainted with a Mr. Laing, one of the best comb honey producers in Ontario. When Mr. Laing was a little past 70, he sold all of his bees with the idea of taking it easy. When I saw him a few days ago, he said, "Mr. Deyell, I am back in the bee business. I bought 50 hives of bees this spring and secured a good crop of honey". He told me he got sick and tired of hanging around the house doing nothing and that he is much better satisfied, now that he has some bees to take care of. He is 76 years of age.

It seems to me that beekeeping is a nice business to be in, especially for people who have passed the meridian of life and are gradually tapering off in their activities, so to speak. It is usually possible for elderly people and sedentary folk to secure someone to do the heavy lifting of supers at the height of the season.

Beekeeping for Old and Young

The keeping of bees is adapted to people of all ages and walks of life. Frequently, professional men have a few hives of bees as a hobby to take them away from the daily grind. Businessmen, driven with the prob-

(Continued on page 35)

RECENT MEETINGS

By M. J. Deyell

The Illinois State Beekeepers' Association meeting held in Springfield on Nov. 12 and 13 was called to order by President E. F. Peterson. **Dr. C. L. Farrar** of U. S. D. A. Laboratory at Madison, Wisc., mentioned Nosema apis, an adult bee disease, now prevalent in some regions. It causes losses of bees also queens. See Dr. Farrar's article on Nosema in this issue page 8. Pollen, says Farrar, is very essential for the normal development of populous colonies. Short crops are sometimes due to shortage of pollen supply. **Mrs. Harriett M. Grace.** Director of American Honey Institute, Madison, Wisc., gave a glowing report on the progress of the Institute which keeps in touch with organizations handling foods to induce them to include honey and publicize its virtues. The Institute is the beekeeper's best friend. **G. H. Cale,** editor of American Bee Journal, referred to the reduction of sweet clover acreage, due to change in crop rotation, also sweet clover weevil. The situation is serious both for agriculture and beekeeping. **Hoyt Taylor,** secretary of the association, was the jovial toastmaster at the beekeepers' banquet which was enjoyed by all.

• • •

The Ontario Beekeepers' Association meeting held in Toronto on Nov. 23 and 25 was one of the best ever. There wasn't a dull moment. Standing room was at a premium. A full account of what transpired would fill a book. Lack of space will permit only the following high lights: (1) **The Canadian Beekeepers' Council,** a national organization, formed some few years ago, consisting of representatives from the various provinces, is fulfilling its mission, in that it helps to direct the activities of the beekeeping industry throughout the Dominion. We in the U. S. A. could learn something from this Council. (2) **Cappings from combs** in most cases are being whirled or pressed practically dry before being rendered into wax, in order to avoid undue darkening of white honey. (3) **Both sides of combs are uncapped at once** at the rate of 250 combs per hour by one producer. (4) **Bees packed in dark heavy paper** with suitable insulating material between the hives and paper appear to winter and "spring" better than bees in large wooden packing cases. (5) A number of beekeepers are finding upper entrances satisfactory. (6) An increasing number of beekeepers are using full-depth food chambers—double-story wintering, instead of feeding sugar syrup. (7) Some beekeepers are kicking vigorously, because honey rationing was enforced suddenly. without their knowledge of it. Prior to rationing of one-half pound per week per person, some commercial beekeepers extracted all day in order to have honey to sell all night. At least, they will now have a rest spell.

• • •

The Southern States Federation of Beekeepers met on November 17 and 18, at Nashville, Tenn., with **L. M. Dewey,** of Florida presiding. **Harold J. Clay** of Washington, D. C., in discussing honey price ceilings said that more honey is going into rural areas than heretofore and less into packer channels. Honey now used in the armed forces should increase future demand. **Harriett M. Grace,** Director of American Honey Institute, told of splendid cooperation of large food organizations of our country secured by the Institute, in creating more consumer interest in honey. **M. S. Fortune,** Manager of Stover Apiaries, Mayhew, Miss., mentioned the unusual demand for packages and queens for 1944, which is likely to exceed the supply. This is unfortunate since bees are so essential to our industry and to agriculture. **Chunk honey** produced mainly from sourwood, in parts of Tennessee, also the Carolinas and put up in wide-mouthed five-pound glass jars with extracted honey poured in around the pieces of comb, came in for a lively discussion. The consensus was that this type of honey which is restricted to certain regions and consumed locally should not come under the provisions of MPR-275 pertaining to extracted honey, but should be in a separate class. Such an appeal is being made to OPA. **P. G. Craddock,** Apiary Inspector of North Carolina, and **W. H. Purser,** recently appointed Assistant Bee Specialist for South Carolina, spoke briefly on the progress being made in bee inspection work.

Just News

The Middlesex County Beekeepers' Association will convene on Jan. 29th at 7 P. M. at 19 Everett St., Concord, Massachusetts. Mr. Frederick Russell of Chelmsford will speak. We recall with pleasure his last winter's talk on bee pasturage, illustrated by Mr. Copeland's beautiful color photo slides of lithrum which has become the major nectar source in many localities of this section. The ladies have arranged a casserole supper with salads, comb honey, brown bread, beans, pies and coffee.—A. M. Southwick, Pres.

• • •

The New Jersey Beekeepers' Association will meet on January 27, in Moose Hall, Trenton, for its annual convention. Allen Latham of Connecticut will be the out-of-state speaker.

• • •

The Wyoming State Beekeepers' Association was reorganized October 8 and 9 at Casper, with the following officers elected: Herman Rauchfuss of Worland, President; John Osborne of Buffalo, Vice-President, and Herbert B. Addleman of Douglas, Secretary-Treasurer. More adequate inspection service is being provided for 1944. Dr. B. Thomas Snipes, State Entomologist, talked on alfalfa weevil infestation which reduced honey crops in some areas. The Association voted in favor of a reasonable floor for honey prices for two years after the war.

• • •

The Pennsylvania State Beekeepers' Association will meet in Room 321, Educational Building, Harrisburg, Jan. 19, for a one-day meeting. E. S. Prevost, Extension Apiarist for South Carolina, will be the out-of-state speaker, also toastmaster for the banquet that evening.

• • •

A. W. Finlay, Provincial Apiarist for British Columbia, showed a colored film of beekeeping methods in that province at the annual meeting of British Columbia Honey Producers' Association recently in Vancouver. Officers elected for 1944 are: Dr. Everly E. Rogers, Vancouver, President; J. H. Head, New Westminster, Vice - President; Harcourt Green, Westminster, Secretary - Treasurer, and J. P. Hodgson, Vancouver, Auditor.

The Oregon State Beekeepers' Association, at a meeting held November 27, elected the following officers for 1944: H. J. Moulton, President; Callie M. Burt, Vice-Pres.; and John D. Burt, Secretary-treasurer. The latter was chosen as a delegate to the Chicago meeting, Jan. 11-13.

• • •

The New Rochelle Beekeeper's Association will hold its next monthly meeting at the home of Mr. and Mrs. S. Barnes, 325 Webster Avenue, New Rochelle, N. Y. on Sunday January 16, 1944, at 2:30 P. M. There will be election of officers for the coming year.—S. Barnes, Publicity.

• • •

The annual business meeting of the Minnesota Beekeepers' Association was held in Minneapolis, December 7, 1943. The officers for the year are: President, Emma Schmidt, Kellogg; Vice-President, E. V. Reinert, Tracy; Secretary-Treasurer, A. G. Ruggles, University Farm, St Paul. Executive Board: Wilbur A. Baldwin, Elbow Lake; Walter Sundberg, Fergus Falls; Charles Hofmann, Janesville. The Association voted to join the new national organization and appointed Robert Ray of Tintah, Minnesota, as delegate.—A. G. Ruggles, Secretary-Treasurer.

• • •

The Ohio beekeepers' winter meeting on December 10 and 11 in Columbus, was one of the best ever held. **Dr. E. F. Phillips,** in reviewing beekeeping in two wars mentioned the Honey Marketing News Service instituted in 1917, also bee extension work started earlier. Honey prices sky-rocketed causing over expansion of some producers. In this war price control will help save our industry. **Jas. I. Hambleton,** speaking on future trends, has little hope in repellents to prevent spray poisoning. Packages may have to be moved to fruit areas for adequate pollination. Pollen is so important that shippers should send a package of pollen with each package of bees. **Dr. J. A. Munro,** of North Dakota, told of damage done in his state, also in Ohio by the sweet clover weevil, which reduces bee pasture. His talk on physical properties of honey will appear later. **Prof. E. J. Anderson,** of Pennsylvania, outlined apiary management for the Alleghany Plateau.

Asked and Answered

Killing Bees with Cyanogas

Question.—How should I "kill off" bees for the winter? Will the honey be suitable for use afterwards?—Lorraine Swenson, Minnesota.

Answer.—A few beekeepers in the far North practice killing off their bees in the fall, leaving enough honey in the hives to feed packages of bees installed the following spring. To do this, Cyanogas is used. This chemical may be purchased in any up-to-date drug store at the rate of $1.00 per pound. A tablespoonful of this powder, placed on a stiff cardboard paper, then pushed into the entrance of the hive, will kill the bees in less than a quarter of a minute. The gas, being lighter than air, travels up and thus kills the bees instantly. Directions on the container should be read carefully before using. This is a powerful chemical and you should stand on the windward side of the hive while applying Cyanogas to hives. The gas will pass off of the combs of honey in a relatively short time after they have been exposed to air. Cyanogas does not make honey unfit for human consumption provided combs of honey are thoroughly aired for some time after they are removed from the hives.

Supersedure Cells and Requeening

Question.—How can I tell if the colony has superseded the queen? Do the colonies swarm when a queen is superseded? What becomes of the extra queens that are hatched out? What is the best time to requeen?—Walter Sippel, New Jersey.

Answer.—A colony that supersedes its old queen does not cast a swarm, as a rule. Sometimes, however, when swarming is at its height, the supersedure impulse will change into the swarming impulse. This condition is the exception rather than the rule. It occurs when supersedure takes place during the swarming season. When supersedure occurs, a few well developed queen cells, usually from three to five, will be found in the upper portions of combs. Swarming cells are usually built near the bottom of combs and the amount of cells may run from ten to twenty, depending on the size of the colony and the race of bees. Italian colonies build fewer swarming cells than do the Carniolan bees. The first virgin queen to emerge from the cell will usually destroy or kill the queens in other cells. If, perchance, two virgin queens emerge from cells at approximately the same time, they will fight until one of them is killed. The one that remains will eventually become the mother of the colony after she has become mated and starts laying eggs. The spring of the year, about fruit bloom time, should be a good time to requeen provided, of course, your colonies actually need new queens. Quite often colonies supersede their old queens, and, provided the stock is good, they rear queens of good quality. The bees usually know when new queens are needed and know it better, as a rule, than the owners of the bees. Occasionally, colonies are found that do not supersede old queens. The queens will be allowed to remain in the colonies almost indefinitely, until they die, and such colonies may become hopelessly queenless.

Handling Shallow Food Chamber

Question.—I bought a package of bees with a queen in the spring of 1942 and put a shallow super on as a food chamber. They have done very well both seasons. Now I am wondering if next spring I should take off the food chamber and clean it up and take the honey out, or should I continue to let the food chamber and the honey in it remain above the brood chamber and not disturb it? Have been told they don't need it and I should use the honey or it will go to sugar. I want my bees to have all the honey they need. They made 72 sections of honey this season.—Mary Pauline Borton Wilson, Ohio.

Answer.—By all means, leave the food chamber on the hive during the entire year. If, perchance, some honey in a few combs granulates during the winter, this will do no harm. When settled warm weather comes, this honey will become liquid and will be utilized by the bees. It is well for each colony to have a considerable amount of honey in reserve. That makes the colony feel prosperous. Your shallow food chamber may be raised to the top of the pile of comb honey supers at the beginning of the flow, at least, to get the bees started in the sections. You have probably done this. This also has a tendency to relieve congestion which is said to be the prime cause of swarming. When the honey flow gets well under way, you can, if you wish, place the food chamber down directly above the brood chamber, where it is ordinarily kept. This helps to insure getting it well filled with honey for winter stores.

American Honey Institute News Notes

Commercial State Bank Bldg., Madison, Wisc.

May 1944 bring Peace - Health - and a Bountiful Harvest!

• • •

The following citation has been received:

WAR FOOD ADMINISTRATION
acknowledges with appreciation
the cooperation of
American Honey Institute
Harriett M. Grace, Director
Commercial Bank Building
Madison, Wisconsin
in supporting the FOOD FIGHTS FOR FREEDOM program of public education during the fall of 1943
(Signed) MARVIN JONES
Administrator

• • •

"Honey for Breakfast" Week will be observed as usual beginning Easter Sunday morning. Honey for breakfast may mean not only a higher individual morale, but also higher efficiency and greater stamina in the handling of national enterprises of tremendous importance at the present time. Honey is good and good for all of us.

• • •

The following is a copy of a letter to the **American Honey Institute** from California.

"Thank you so much for sending us such grand material. Part of it arrived in time to go in our kit for Nutrition Week. The rest of it we are saving to use for future nutrition programs that will come up the first of the year. Considerable interest was shown in the uses of honey by the housewives who stopped at our information center."

The extract below is taken from a letter also received from California.

"I was pleased to note in the current issue of the Canner Magazine 'Honey for Breakfast Week' and 'National Honey Week' were both items on the calendar."

• • •

Enriched Flour's very attractive Holiday Bulletin gives the following Honey Nut Filling for Sweet Yeast Dough rolls. The rolls are so delicious, we'll give the entire recipe.

Honey Nut Filling

¼ cup margarine or butter, ½ cup honey, ¼ cup chopped nuts, ¼ cup chopped raisins.

Cream together margarine or butter and honey. Add nuts and raisins. Yield: About 1¼ cups filling, enough for 2 dozen 3-inch rolls.

Sweet Yeast Dough

2 cakes compressed yeast, ¼ cup lukewarm water, 1 cup milk, ¼ cup shortening, ½ cup sugar, 1 teaspoon salt, 2 eggs, beaten, 5½ to 6½ cups sifted, enriched flour.

Soften yeast in lukewarm water. Scald milk. Add shortening, sugar, and salt. Cool to lukewarm. Add 2 cups flour. Add yeast and eggs. Beat well. Add enough more flour to make a soft dough. Turn out on lightly floured board and knead until satiny. Form into a ball, place in greased bowl, cover and let rise until almost doubled in bulk. Punch down. Roll out to long narrow sheet ¼ inch thick. Spread with desired filling. Roll up jelly-roll fashion and seal edge. Cut into 1-inch slices. Place cut side down into greased muffin pans. Let rise until doubled in bulk. Bake in moderate oven (375°F.) 25 minutes. Yield: About 4 dozen rolls.

A strong colony in a Langstroth hive owned by L'Habre Perregaux of Algeria. They, too, have skyscrapers.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 8 cts. per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write use for best prices obtainable. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

WE PAY CASH for extracted clover honey. Fair-Field Honey Company, Millersport, Ohio.

HONEY WANTED—State kind, quality, amount. Ellsworth Meineke, Arlington Heights, Ill.

WANTED—White and amber honey; any amount. D. F. Treap, 317 Keenan Ave., Cuyahoga Falls, Ohio.

WANTED TO BUY, comb, chunk, and extracted honey, any amount. Lose Bros., 206 E. Jefferson, Louisville, Ky.

WANTED — Honey and beeswax. Mail samples, state quantity and price. Bryant & Cookinham, Inc., Los Angeles, Calif.

CEILING price paid for Michigan clover honey, in sixty-pound cans. TOWNSEND SALES COMPANY, E. D. Townsend, Northstar, Michigan.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

WANTED—White clover and light amber honey. Any amount. Cash at time of delivery. Clover Blossom Honey Co., 975 Berkley Road, Columbus, Ohio.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Honey Co., 12243 12th St., Detroit, Mich.

WANTED—We pay cash top price for clover honey in 60-lb. tins. Any quantity. Send samples and best prices. Cloverdale Apiaries, F. M. Babcock, Fredonia, N. Y.

HONEY WANTED—All Grades and Varieties. Highest Cash Prices Paid. Mail Sample. State Quantity. HAMILTON & COMPANY, 1360 Produce Street, Los Angeles, Calif.

HONEY AND WAX WANTED. All grades. Any quantity. Send samples and your best cash price. We carry large stock of Tin and Glass honey containers. ALEXANDER COMPANY, 819 Reynolds Rd., TOLEDO, OHIO.

WANTED white or light amber extracted honey from 1000 lbs. to a carload. Cash waiting. Send samples and best price to Honeymoon Products Co., 39 E. Henry St., River Rouge, Mich.

FOR SALE

MY FAVORITE BEE VEIL. Write for description and price. G. M. Ranum, Mount Horeb, Wisconsin.

FOR SALE—Four-frame reversible extractor, used one season, $40.00. Joe Finfera, Lyons, Ohio.

QUEENBEE PAINTING outfits $1.00 colony records 10/15c, postpaid. Southwick Apiaries, Waban, Massachusetts.

YOUR WAX worked into quality medium brood foundation for 16c a lb; 100 lbs. $12.00. Fred Peterson, Alden, Iowa.

COMB FOUNDATION at money-saving prices. Wax worked at lowest rates. Comb and cappings rendered. Robinson's Wax Works, Mayville, N. Y.

WRITE FOR CATALOG. Quality bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

SAVE MONEY by letting us work your wax into wired regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices as we have no agents. Walter T. Kelley Co., Paducah, Kentucky.

FOR SALE—60 supers, section holders, and M fences for 4 x 5 sections; 16 supers, N frames and fences for 4¼ x 4¾ x 1⅜ sections; 13 supers with shallow frames, and 8 empties; good condition, 8 frame width. Root's goods, bargain, $45. Dr. C. G. Luft, Fremont, Ohio.

FOR SALE—One 45-frame extractor; 3 honey tanks (3 ton, 1½ ton, and ¼ ton respectively): one 2 h. p. boiler; one honey pump. 1200 factory made standard 10-frame hive bodies with frames; 400 covers; and 400 cypress bottom-boards. Certificate of health furnished. Write Mrs. J. W. Beatty, Felton, Minnesota.

BEES AND QUEENS FOR SALE

SOLD OUT both package bees and queens until June. Jasper Knight, Hayneville, Ala.

PACKAGE BEES and queens. Italian stock. Dependable service. Circular. Crenshaw County Apiaries, Rutledge, Ala.

CAUCASIAN-ITALIAN queens and bees for packages, for duration. 2-lb. package and laying queen $3.35. 3-lb., $4.35. Queenless packages, deduct $1.00 each. No extra queens. Miller Bros., Rt. 1, Three Rivers,, Texas.

FOR SALE—One to two hundred ten-frame colonies certified Italians. Good honey or package location south Georgia. Colonies have young clipped, resistant stock queens. Sufficient winter stores. Equipment painted number one condition. A. V. Dowling, Valdosta, Georgia.

BRIGHT ITALIAN QUEENS, $1.00 each, Ready in April. D. W. HOWELL, Shellman, Georgia.

HOLLOPETER reared Italian queens ready in May. White Pine Bee Farms, Rockton, Pa.

FOR SALE—Package bees, queens, and 3 frame nuclei. Write for 1944 prices. Walker Apiaries, Lexington, Texas.

ITALIAN QUEENS, 80c each, $9.00 per dozen. Satisfaction guaranteed. Walter D. Leverette Apiaries, RFD. 2, Fort Pierce, Florida.

250 two-frame nuclei, $4.50 each. No shipments. Get them in your own equipment April delivery. E. E. Salge, Weslaco, Texas.

COMPLETE 800-colony outfit in northwestern Minnesota clover belt. First class condition and disease free. E. E. Salge, Weslaco, Texas.

CAUCASIAN bees and queens. Booking for shipment after May 10th. 2-lb. pkg., $3.50; 3-lb. pkg., $4.50. Lewis & Tillery Bee Co., Greenville, Ala.

THREE-BANDED ITALIAN queens, finest quality, extra good workers. 1-25, $1.10 ea.; 25-100, $1.05; 100 up, $1.00. Booking orders now for spring delivery. Alamance Bee Co., Geo. Elmo Curtis, Mgr., Graham, N. C.

FOR SALE—200 colonies, fully equipped. Honey house, and residence. Small down payment, easy terms. Certificate of inspection furnished at time of sale. Write I. King, Derby, Texas.

HELP WANTED

WANTED—Man with some bee experience. C. H. Schader, Sunnyside, Washington.

EXPERIENCED BEEKEEPER wants 100 colonies bees on shares. Arne Oien, Halstad, Minn.

WANTED experienced help. Give full particulars in reply. Board and room furnished. Theo. Keinath, Vassar, Mich.

WANTED—Man with beekeeping experience for year-round work with deferment possible. Arthur J. Schultz, Ripon, Wis.

WANTED—Man with beekeeping experience as assistant in bee-supply and honey business. A. I. Root Co., Chicago 10, Ill.

HELP WANTED — Man experienced in the raising of queen bees in quantity production. Hyland Apiaries, West Elkton, Ohio.

HELP WANTED — Largest commercial outfit in East. Steady work for good help. Single or married. M. E. Ballard, Roxbury, N. Y.

WANTED—Young men or women to assist commercial beekeeper, season March 1st to December. Charles Mraz, Middlebury, Vermont.

WANTED—Experienced man, married or single. in queen, package, and honey production. Year around work. Give full particulars when replying. Al Winn, Rt. 1, Petaluma, Calif.

WANTED two men to work bees starting first of February, not much experience necessary. Can furnish house for married man. State age, weight, and wages expected. Can not use a man that uses alcholic drinks. J. W. Reitz, Summerfield, Rt. 1, Fla.

HONEY WANTED
Carloads and less, all grade
Will pay top price.
Would contract now for
Also Beeswax.
H. & S. HONEY & WAX COMPANY, Inc.
265 Greenwich Street, New York, N. Y.

CASH BUYERS OF HONEY
Carload or Less
B-Z-B Honey Company
Alhambra, Calif.
(Los Angeles County)

WANTED--Extracted Honey All Varieties
Send samples and delivered prices to
JEWETT & SHERMAN COMPANY
Cleveland, Kansas City and Brooklyn

CARNIOLANS
CAUCASIANS
Gentle, prolific, good winterers, wonderful workers, build up rapidly during Spring. A limited number of of 2-lb. and 3-lb. packages during May and queens of both races later.
Albert G. Hann, Glen Gardner,, N. J.

CHOICE ITALIAN QUEENS
and package bees.
We have been furnishing queens and package bees through other shippers. Let us furnish yours direct. Write for prices.
CLIFTON APIARIES
P. O. Box 684, Oroville, Calif.

PURE ITALIAN QUEENS
1 - 49, $1.25
49 - up, 1.10
15% will book your order.
Middle Tennessee Apiaries
JOE B. TATE & SON
1029 No. 4th St., Nashville, Tenn.

MOUNTAIN GRAY BEES FOR 1944

Prices:	2-lb.	3-lb.	extra queens
1 to 49	$4.00	$5.00	$1.10
50 to 99	3.75	4.75	1.05
100 or more	3.50	4.50	1.00

Bees F. O. B. here. Queens post paid.
No more orders accepted until further notice.
BOLLING BEE CO.
Bolling, Ala.

1944 Prices

• • •

Italian Caucasian

• • •

	Queens	2 lb.	3 lb.	4 lb.	5 lb.
1-24	$1.10	$3.50	$4.50	$5.50	$6.50
25-99	1.05	3.35	4.35	5.35	6.35
100 up	1.00	3.20	4.20	5.20	6.20

We are already booked to capacity for next April and May. If we have a very favorable Spring we may be able to handle a few more orders, but cannot book any more at this time.

Will advise conditions later.

• • •

The Stover Apiaries

Mayhew, Miss.

PETTIT'S PACKAGE BEES

All Sold for 44.

Regret that we cannot accept more orders for 1944 than we have already booked.

Will try to have even more bees in 1945.

Morley Pettit

Tifton, Georgia, U. S. A.

WOODMAN'S

Quality Bee Supplies

Beeswax Wanted - Cash or Trade
Government Ceiling Prices Paid.
Manufacturers of Woodman's Famous Bingham Bee Smoker.

A. G. WOODMAN CO.

Grand Rapids 4, Mich. U. S. A.

YOUNG MAN to assist in extracted honey production. 1,000 colonies. State age, size, habits, experience, and salary expected. Season April to November. Board and room furnished. Lavern Depew, Auburn, New. York.

WANTED — Married, reliable. queen breeder who can produce 200 queens every day. Year round work—no part time considered. For our So. La. Bee Farm. Must not be afraid of rain, long hours, or Sunday work. WALTER T. KELLEY CO., Paducah, Ky.

WE ARE IN NEED of an experienced queen breeder. Although we would hire a seasonal man, we would prefer a queen breeder who would work the year around, manufacturing and preparing supplies outside of the actual queen season. In other words, we desire a permanent man in our growing business. In addition we will need a couple of helpers. Write "Box 388 Picayune, Mississippi."

MISCELLANEOUS WANTED

WANTED—Several old style uncapping knives. Round handles, broad blades, good condition. Lavern Depew, Auburn, N. Y.

WANTED—Small planer and matcher (or shaper) in good or repairable condition. Levi Kinney, Ithaca, Mich.

WANTED—One-inch honey pump with reduction gear, also 25-frame Merry-go-round. Wm. Kruse, Jr., Godfrey, Ill.

WANTED — Bees and equipment, 75 miles of Oil City, Pa. George G. Gwyn, Oil City, Pa.

WANTED—Fifty or more 3-lb. packages of Italian bees, with the mother queens shaken in the packages, for April 20th delivery. L. S. Griggs & Son, 711 Avon St., Flint 3, Mich.

WANTED—A small apiary (100-150 hives) standard 10-frame hives, with small modern home, 4, 5, or 6, rooms, preferably in bee Counties in New York State. P. Das. Hillside Ave., Peekskill, New York.

SEEDS

KOREAN LESPEDEZA high quality $3.50 Bushel. Hardy Alfalfa $19.50; Grimm $21.00. New Timothy $3.10. Sweet Clover, Scarified, $7.80; Unhulled $4.20. Red Clover $18.60. Clover - Timothy Mixed, $5.80. All Triple Cleaned. Guaranteed Satisfactory. Hybrid Corn $3.25. Write Free Sample—Catalog. Frank Sinn, Box 482, Clarinda, Iowa.

BUY U. S. WAR BONDS AND STAMPS

HONEY AND BEESWAX PRODUCED

(Continued from page 19)

States the highest average since 1920. This was 1.1 cents per pound more than was received in 1942 and more than twice as much as the 5-year average (1935-39). Prices throughout the country were quite uniform at or near ceiling levels.—U. S. Dept. of Agri., Bureau of Agricultural Economics, Washington, D. C.

MAGAZINES

MODERN POULTRY MAGAZINE operating experimental farm guides in growing, laying, marketing. Year 25c; 5 years $1.00. Subscribe today! Poultry Tribune, Dept. 149, Mount Morris, Ill.

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly, 7s. 6d., International Money Order. Apply Editor, Indian Bee Journal, Jeolikote, Dist. Nainital, U. P. India.

READ the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, P. O. Box 43, Cleveland, Johannesburg, S. Africa.

WESTERN CANADA BEEKEEPER, official organ of the Manitoba Beekeepers' Association, one year, $1.00; in combination with one year's subscription to Gleanings in Bee Culture, $1.60. Wallingford Building, Winnipeg, Canada.

MANY BEEKEEPERS have proven raising fox, mink, nutria, muskrats, rabbits, highly profitable. Send dime for sample copy. Canada's oldest fur farming magazine telling how. Fur Trade Journal of Canada, Box 31, Toronto, 2, Ontario.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription-$1.50. Hotel Cactus, San Angelo, Texas.

THE BEE WORLD—The leading Journal in Great Britain and the only international bee review in existance. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free, 12 cents stamps. Membership in the Club, including a subscription to the paper 10/6. The Apis Club. L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

$1 GARDEN SEEDS FREE

To the first 1000 who order through this notice, we'll send FREE $1.00 in garden seeds. Write for our "Lucky 7" offer and catalog today.

BERRY SEED CO., 182F Clarinda, Iowa

SOY BEAN FLOUR—POLLEN SUPPLEMENT

We have made arrangements with the manufacturer for distribution of their Soy Flour for beekeepers. This is the Lo-Fat, High-Protein expeller type flour. Write for prices.

Killion & Sons Apiaries
Paris, Illinois

THE BEEKEEPERS MAGAZINE
$1.00 a Year

Established 1938, it is now one of the three leading beekeeping publications.
Single copy current issue, 10c.
Combined with Gleanings in Bee Culture, it makes the Perfect Pair. Both magazines, one year, $1.75.
THE BEEKEEPERS MAGAZINE
3110 Piper Rd. Rt. 5, Lansing, Mich.

BUY U. S. WAR BONDS AND STAMPS

Customers and Friends

"BUY BONDS"

Your order for PACKAGE BEES should be placed at once. Many shippers report complete booking at this early date and indications point to a great shortage. We are making a special effort to supply our customers and can only do this if you co-operate.

"BUY BONDS"

Do this: Place your order for estimated needs NOW. We would rather you cancel part of your order than ask for an increase later.
Give us the privilege of shifting your shipping date a few days either way, as many dates are already filled.
Club small orders for shipment to one address.
10% deposit required with order.
2 lbs. with queen, any number, $3.35
3 lbs. with queen, any number, 4.35
Queenless packages, deduct from above prices $1.00.
Due to labor shortage and demand for use in packages we cannot offer extra queens in spring.

"BUY BONDS"
They Satisfy.

Rossman & Long
Box 133 Moultrie, Ga.

..Ironsides Foundation..

(patented)

Besides being vertically wired the ends are metal-bound, giving you a wonderful comb after the bees draw it out. Tough and straight as a board. For use in split bottom bar Hoffman frames.

Once used - ALWAYS USED

Sheet sizes 8½ x 16¾
10 sheets $1.35
50 sheets 6.50
100 sheets 12.50
(plus postage)
Send for complete price list on bee supplies.

The Fred W. Muth Company
229 Walnut St. Cincinnati, 2, Ohio

The Monthly Honey Market

U. S. GOVERNMENT REPORT
Information from Producing Areas
SUMMARY

Temperatures west of the Rockies and in the north and eastern sections, along the Atlantic Seaboard to Virginia ranged generally above normal. Other parts of the country reported cold, sub-normal weather. Heavy snows occurred in the New England area from Upper New York to Maine where 10 to 16 inches of snow were reported. Precipitation was general throughout the Plains States and Texas and parts of the Northwestern States. The south Atlantic Coastal and Gulf States also reported rains. The over-all picture, however, indicates that soil moisture is generally below normal. Plant conditions are fairly good except in those localities where the drought has been severe. Prospects for next season's honey crop are rather favorable in most of the states but there is considerable concern among beekeepers who depend largely on clover for a crop. The clover acreage has been decreasing for the past several seasons because of the necessity for converting pasture lands into fields for food production. Generally, colony condition is good. The fall flow proved to be the most productive for several years and most colonies built up well at this time. There were, however, many beekeepers who, anxious to take advantage of the higher prices and ready market for honey, extracted too closely. As a result heavy feeding has and will be necessary during the winter months. The labor situation is also causing worry and some large beekeepers, especially package producers, have expressed a doubt as to their ability to operate at full capacity unless help is forthcoming. It is quite evident now that the honey production for the country as a whole is lower than previously anticipated. With the present heavy demand there probably will be very little available honey after the first of the year. Many beekeepers who in past years moved their entire crop in large lots retailed their honey in small packages to local consumers and retailers.

EPHARDT'S CARNIOLANS
2-lb. bees and queens, $3.50 f.o.b.
3-lb. bees and queens. 4.50 f.o.b.
Extra Carniolan queen, $1.25 ppd.
EPHARDT'S HONEY FARMS
Plaucheville, La.

PACKAGE BEES
FOR MAY

We thank our loyal customers for making the year just closed the largest in our history for shipping package bees and queens.

Also for their confidence expressed by the booking, already, of even more packages for 1944.

We have increased our capacity for producing both packages and queens, by approximately one third, and are booked full for April and into May.

We are stream-lining production in an effort to serve the most customers possible, and will ship only Two-pound and Three-pound packages up to May 20. After then can ship Four-pound packages and Loose-queen type.

Orders accepted as received, for first available shipping dates, or returned with explanation.

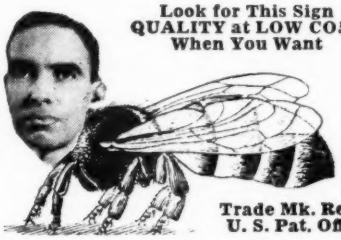
MAY WE WISH YOU ALL A PROSPEROUS 1944.

THE PUETT COMPANY
Hahira, Ga.

SELL US YOUR HONEY NOW AND SAFEGUARD YOUR FUTURE SALES

• Here is an opportunity to establish **permanent** connections with one of America's largest honey merchants. Sell us your honey now, all of it in carload lots. (Smaller amounts accepted from nearby points.) We pay top ceiling prices. We also want your beeswax. For this we pay $.41½ for clean, pure, yellow wax. All prices effective at shipping points. Send your samples at once. Cans returned in accordance with OPA order No. 275, if desired.

THE JOHN G. PATON COMPANY, INC.
630 Fifth Avenue, New York, N. Y.



Look for This Sign
QUALITY at LOW COST
When You Want

Trade Mk. Reg.
U. S. Pat. Off.

KELLEY—"The Bee Man"

Glass - Tin

16 oz. Economy Jars, carton 24 each, $0.70
32 oz. Economy Jars, carton 12 each, .42
5 lb. Economy Jars, 12 cartons 5.00
24 cartons 9.95
60 lb. Square tin cans, carton of 16 5.40
Quick shipment from large Paducah stock.

You Are Late

We can no longer accept orders for thousand lots of hive bodies as material and help are not available, but we can still accept orders for reasonable quantities of bodies and most any quantity of frames and most other items. Order now.

THE WALTER T. KELLEY CO.

Paducah, Kentucky

the Hubbard APIARIES

WRITE FOR
FREE CATALOG

Quality Bee Supplies Factory Prices
Prompt Shipment from Stock
Satisfaction Guaranteed

THE HUBBARD APIARIES

Manufacturers of Bee Supplies
ONSTED, MICHIGAN

Wanted Amber Extracted Honey
Send Samples and best price Frt. Paid to Cincinnati, O.
THE FRED. W. MUTH CO.

Buy U. S. War Bonds and Stamps

YORK'S PACKAGE BEES AND QUEENS

For 1944

Quality Bred Italians

We are now booking orders for spring delivery and expect the demand to surpass the past season which was the greatest we ever had. Place your order now without delay.

QUEENS AND PACKAGE BEES WITH QUEENS

Quantity,	1 to 24,	25 to 99	100 up
Queens	$1.10 each	$1.05 each	$1.00 each.
2-lb. Packages	3.65 each	3.50 each	3.35 each.
3-lb. Packages	4.75 each	4.55 each	4.35 each.

For larger packages add the difference between 2-lb. and 3-lb. packages for each additional pound of bees. Order direct from this advertisement and save time. Yours for full weights, quality bees, young queens and satisfaction.

YORK BEE COMPANY, JESUP, GEORGIA, U. S. A.

(The Universal Apiaries)

First Quality Italian Package Bees and Queens

FOR 1944 DELIVERY

	(1)	(10)	(50)	(100 and over)
2 lbs. with queen,	$4.25	$4.00	$3.60	$3.40
3 lbs. with queen,	5.25	5.00	4.50	4.25

Extra queens, $1.25 each.
No discounts to dealers.

Terms: 10% down to book your order, balance 10 days before shipment. Payable in U. S. Funds.

Book your order early and avoid disappointment.

ALBERT KOEHNEN, Live Oak, Calif.

2 Years $1.50

American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

—SAMPLE COPY FREE

$1.00 a year, 2 years $1.50 in U. S. and Canada. Combined with Gleanings in Bee Culture, both magazines. **ONE YEAR, $1.75.** This offer good only in the United States.

Address—

American Bee Journal, Hamilton, Ill.

Photo shows portion of our queen bee yard containing over 6000 nuclei.
ITALIAN PACKAGE BEES AND QUEENS
2 lbs. with queen, $4.00; 3 lbs. with queen, $5.00
By express.
Extra queens, $1.25 each.
OVERBEY APIARIES, BUNKIE, LA., O. Z. Overbey, Proprietor

BEEKEEPING IN THE ARMY

(Continued from page 7)

Baptist preacher out of the hills of western North Carolina, and a professed admirer of sourwood honey. He must have liked the low country honey my bees produced, too, for he furnished a container to put it in and led a fellow officer to purchase a supply for his own use. I gave friends all they could eat and gave generous samples to our mess sergeant.

Three frames were stolen from a super on my top producer, but whoever it was was kind enough to return the frames after the honey had been cut out. I know I had a 400-pound crop.

I even had honey to bring to the ward I was in after I became a patient in the hospital, being placed there by sickness that caused my discharge in September.

Looking back on my 13½ months of army life I believe the bees stand out best. Perhaps it shouldn't be like that at all because I had them six months only out of the time I was in, but things grow on you. My real job was that of a general clerk, and there's plenty of work attached to that. My "army" bees were the civilian touch that eased army discipline to a minimum. Looking back, too, I can remember only two outstanding blemishes to the bees' record. One mar was made when an irate member of an ill-natured colony chased and stung a sergeant, causing him to remain in bed for three days. The other bad place on their record was made when worker bees flying over and through the tennis courts (located near the apiary) caused faster action than any tennis match ever had.

I wish other beekeepers in the army had the same chance to keep bees that I did. I'd be willing to help one in the camp nearest to me and get him started towards the relaxation found in working with bees.

Apison, Tennessee.

TALKS TO BEEKEEPERS

(Continued from page 23)

lems which confront them each day, seek relief and recreation out among the bees.

Sideline Beekeepers

There are thousands of people who keep some bees on the side to fill up some time not spent on their regular business. In some instances, the sideline gradually develops into a vocation rather than an avocation. The work connected with bees is such that it can be done, as a rule, at the convenience of the beekeeper rather than at any specific time of the day or week.

There are said to be approximately 800,000 beekeepers in the United States. As a matter of fact, there may be more or less.

According to a recent report put out by the Department of Agriculture, there are almost 5,000,000 hives of bees in the United States. The honey crop in this country for 1943 is estimated at about 189,000,000 pounds. That is a considerable amount of honey but it is only a little over a pound for each man, woman, and child in the U. S. A. Our country needs more honey and in order to have more honey we must have more bees and beekeepers.

I know we are going to enjoy another year together and if, perchance, I fail to furnish the information needed, do not hesitate to write.

Bibliography

(Continued from page 9)

Fantham, H. B. and Porter, Annie, 1912. The morphology and life history of Nosema apis, and the significance of its various stages in the so-called "Isle of Wight" disease in bees (Microsporidiosis). Annals. Trop. Med. and Parasitol. 6:163-195.

White, G. F. 1919. Nosema disease. U. S. Dept. Agr. Bul. 780. 59 pp.

Winkel, Dr. A. J. De Nosema-Ziekte en Harr Beteekenes Voor de Bijenteelt in Nederland. Department Van Economische Zaken. Directie Van den Landbour; Medeleelingen Van den Veeartsenijkundigen Dienst.-Rijksuitgeverij Dienst v. d. Nederlandsche Staats Courant 1939. (Reviewed in "Bee World" Jan. 1940: pp. 7-9.)

Farrar, C. L. November, 1942, Gleanings.

QUALITY PACKAGE BEES AND QUEENS

We have discontinued booking orders until further notice in the bee journals.

Prices for 1944:

	2 lb. with Queen	3 lb. with Queen	Single Queens
1 to 10	$3.45	$4.45	$1.05
11 to 24	3.35	4.35	1.00
25 to 100	3.30	4.30	.95
100 and up	3.20	4.20	.90

GARON BEE CO., DONALDSONVILLE, LA.

Telephone 8614 Telegrams, Western Union

BETTER-BRED QUEENS---Three-Banded Italians

We can supply a limited number of packages at the following prices:

	2-lb.	3-lb.	4-lb.	5-lb.
Packages with queens,	$4.00	$5.00	$6.00	$7.00

Queens, $1.25 each.

One - half deposit required for booking orders.

CALVERT APIARIES, Calvert, Alabama

Wanted White Extracted Honey

Send Sample and best price Frt. Paid to Cincinnati, O.

THE FRED. W. MUTH CO.

Buy U. S. War Bonds and Stamps

THANKS

– for your past year's business.

Remember if you are in need of bee supplies we will be able to take care of you so far as possible under present conditions.
(Material and labor are hard to secure.)

HAPPY NEW YEAR.

• • •

The A. I. Root Co. of Iowa.
Council Bluffs, Ia.

A. I. Root Co. of Chicago.
224 W. Huron St.
Chicago, 10, Ill.

A. I. Root Co. of Indianapolis.
121 N. Alabama
Indianapolis, 4, Ind.

A. I. Root Co. of Syracuse.
Midland Ave. and Tallman St.
Syracuse, N. Y.

The A. I. Root Co., 12 W. 21st St., New York, 10, N. Y.

GASPARD'S QUALITY ITALIAN PACKAGE BEES AND QUEENS

We are booking orders for the 1944 season. Order early for the demand will be greater than the supply. Only 25% down will book your order balance at shipping time. Prices as follows:

(Combless Packages with queens)

Lots of	2-lb Pkgs.	3-lb. Pkgs.	4-lb. Pkgs.	5-lb.Pkgs.
1 to 9	$3.30	$4.25	$5.05	$5.75
10 to 24	3.15	4.05	4.80	5.50
25 to 49	3.05	3.90	4.60	5.25
50 to 99	2.95	3.80	4.55	5.20
100 or more	2.90	3.75	4.50	5.15

(Comb Packages with one Standard frame of brood with Queen)

Lots of	2-lb Pkgs.	3-lb. Pkgs.	4-lb. Pkgs.	5-lb.Pkgs.
1 to 9	$4.10	$4.95	$5.75	$6.45
10 to 24	3.95	4.75	5.40	6.20
25 to 49	3.85	4.60	5.30	5.95
50 to 99	3.75	4.50	5.25	5.90
100 or more	3.70	4.45	5.20	5.85

Extra Queens, $1.25 each

Safe live delivery guarantee, and a health certificate with each shipment.

J. L. GASPARD, Hessmer, La.

QUEENS

Italians **Daughters of Queens Bred for Resistance** **Caucasians**

PACKAGE BEES

Prices on Package Bees With Queens

Lots of	2-lb. Bees	3-lb. Bees	Extra Queens	For Tested
1 to 24	$4.00	$5.00	$1.25	queens double
25 to 99	3.80	4.80	1.15	the price of
100 or more	3.70	4.70	1.10	untested.

BOOKING ORDERS NOW

Over 25 year's experience shipping. Paying 43½ cents a pound for Beeswax in exchange for bees and queens. If you have over 50 pounds, write for shipping instructions. We replace any bees that die in transit if it is our fault; if it is the carrier's fault file claim with them.

Send for FREE CIRCULAR

BLUE BONNET APIARIES, Rt. 1, Box 70, Mercedes, Tex.

— — ATTENTION PLEASE — —

We are now booked up for April and May on both package bees and queens. Should conditions prove favorable, we hope to accept additional orders during February. Until that time no further orders will be accepted.

BESSONET BEE CO., DONALDSONVILLE, LA.

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the

"Australasian Beekeeper"

Subscription 5 shillings per year. Start any time. Inquire for International Money Order for 5 shillings (Australian) at your Post Office.
Write now to the Editor. P. O. Box 20.
West Maitland New South Wales
Australia

BEEKEEPERS ITEM

Serving the beekeeping industry for a quarter century without bias or prejudice. "The forum for the thoughtful" One year $1.00; two years, $1.50; sample copy, 3c stamp.
With Gleanings it provides a combination that covers the beekeeping field.

Both magazines for one year, $1.75

BEEKEEPERS ITEM
P. O. Box 687 San Antonio, Texas

BUY LOTZ SECTIONS

• • •

You will get the finest sections that can be made. Prices may rise, as lumber, labor and manufacturing costs have all advanced.

Protect your 1944 honey crop by buying your supplies before the honey flow begins, so that you will have all the equipment you will need.

• • •

August Lotz Company

Manufacturers of Bee Supplies

Boyd, Wisconsin

NOTICE

Write for prices for having your wax made up or outright purchase of

SCHMIDT'S Economy Foundation

Not excelled for quality, strength and workmanship

Satisfaction Unconditionally Guaranteed

Oscar H. Schmidt & Sons

Rt. 4 **Bay City, Mich.**

ARE YOU KEEPING UP

with the latest developments in your field? Here's a group of magazines that specialize in a particular subject! Send your subscription today!

Bee Magazines
- Gleanings in Bee Culture, $1. per year
- Beekeepers' Item, $1.
- American Bee Journal, $1.

Dairying
- Dairy Farmers Digest, $1.
- Dairyman's Journal, 35c
- Dairyland News, s. m., 50c

Farming
- American Farm Youth, 75c
- Fletcher's Farming, 50c

Fruit
- Better Fruit, m., $1.
- Eastern Fruit Grower, $1.

Goats
- American Dairy Goats News, $1.
- Goat World, $2. (6 months, $1.)

Livestock
- The Cattleman, $1.
- American Cattle Producer, $1.
- Florida Cattleman, $1.
- National Live Stock Producer, 50c
- Texas Live Stock Journal, $1.
- Pacific Stockman, $1.
- The Sheepman, $1.
- New Mexico Stockman, $1.
- Arizona Stockman, m., $1.50
- Breeder-Feeder, m., Brahmans, India cattle, $1.

Horses
- The Chronicle, weekly, breeding, fox hunting, racing, horse shows, $5.
- National (Saddle) Horseman, $5.
- The Horse, bi-monthly, breeding, schooling, training, horse sports, $5.
- Saddle and Bridle, m., $4.
- Thoroughbred (Horse) Record, w., $4.
- Rider & Driver, m., horse-sport-pleasure, $3.50
- Iowa Horseman, m., $2.
- Spokesman & Harness World, m., $1.
- Bit & Spur, m., (horsey), $1.50
- NRA Round-Up, m., (rodoes), 50c

Pigeons
- American Pigeon Journal, Squab-fancy, $1.50
- Pigeon News, fancy only, $1.50

Poultry
- Cackle & Crow, the Poultrypaper, $1.
- Pacific Poultryman, 50c
- Bantam Magazine, $1.
- Northeastern Poultryman, 24 issues, 2 years, $1.

Rabbits
- Small Stock, (rabbits, cavies exclusively), $1.
- American Rabbit Journal, $1.
- American Sm. Stock Farmer (rabbits only), 50c

Other Specialities
- The Soybean Digest, $1.50
- New Agriculture (sugar beets only) $2.
- Small Commercial Animals & Fowls, 50c
- Co-operative (Farmers) Digest, $2.
- Southern Sportsman, Q., 12 issues, $1.50
- Mountain Music, m., coons, fox-hounds, $1.

All magazines are monthlies unless otherwise noted; prices are for one full year. Satisfaction guaranteed. All orders are handled promptly and acknowledged. Rush your subscription today. Remit in any way convenient to you.

MAGAZINE MART

Dept. GB P. O. Box 1288, Atlanta, 1, Ga.

Sample copies at single copy prices.

Yes, Hen's Teeth, We Have Them

4-fr. Extractors, 9⅝" baskets	$14.25
10-fr. wood-bound, wire Excluders, each	.85
in lots of 5 or more, each	.80
10-fr. All-wire Excluders, each	.80
in lots of 10 or more, each	.75
Bee Escapes, each	.12
2" Hive Staples per lb.	.30
10-fr. Telescope Cover Hives (tar paper covering) with Inner Covers, Frames, etc. Lots of 5	14.75
10-fr. Bodies and Frames, lots of 5	6.65
Hoffman Brood Frames, per 100	5.05

(price subject to change)

Send for complete price list.

THE FRED W. MUTH COMPANY

229 Walnut St. Cincinnati, 2, Ohio

Root QUALITY for Michigan Buy Now and Save Money Root QUALITY for Michigan

WE HAVE A LARGE STOCK OF ROOT HIVES.

As this goes to press we are still selling at 1942 Catalog prices. Order at ONCE. $50.00 orders, 5% off; $150.00 orders up, 10% off.

U. S. Government Wants More Spreads for Bread.

Plan now to produce more COMB HONEY as PRICES are HIGH and may go HIGHER in 1944.

SPECIALS—No Discount—SPECIALS

—25 Root Quality one-story 10-frame Hives complete with Mastic Covers, Inner Covers and Cypress Bottoms, and 250 Root M.O.G. Frames with 250 sheets Airco 3-ply, and 1¼ lb. wire; all for $4.20 each if ordered with 25 3-lb. Packages of Bees at 1944 ceiling prices from dependable southern shipper between May 10 and May 30.

—5 Complete 10-frame Hives, as above, for $4.50 each, complete if ordered with an order of 5 3-lb. packages of bees at 1944 prices.

—150 Root Quality 8-frame one-story Hives with Telescope **METAL COVERS** and 3-piece inner covers and Cypress Bottoms. Frames are Root's Mail Order Grade. $2.60 each for whole lot if taken at one time. Can supply 35 8-frame queen excluders extra.

Can supply from our limited quota a few Extractors, Tanks, Power Uncappers, Electric Motors, Excluders, Bee Escapes, and Hand Tools; also Tin Pails for Bee Feeders with certification.

Above Quotations Subject to Change Without Notice.

M. J. BECK

Successor to M. H. Hunt and Son.

510 N. Cedar St., Box 7 Lansing 1, Mich.

CONTENTS

January, 1944

The Beekeeping Industry and Insecticides—J. E. Eckert ..	1 - 4
Beekeeping in the Bahamas, B. W. I.—W. Ivor Claridge..	5
Beekeeping in the Army—Ex-Sgt. Carl M. Teasley.....	6 - 7
Nosema Disease—Dr. C. L. Farrar	8 - 9
Honey Will Stretch Ration Points—Mrs. Benj. Nielson	10 - 11
Simple Method of Rearing Queens and Requeening..... —M. J. Deyell	12 - 13
National Beekeeping Conference	13
A Fresh Air Colony—C. H. Huey.....	14
A Hobby That Pays—C. O. A. Kramer	14 - 15
Interest in Caucasian Bees Increasing—Dr. E. F. Phillips..	15
A Snake Story—J. Donelson Jones	15
The Small Packer of Honey—Lloyd C. Gardner	16
Glue for Assembling Frame and Supers..... —Charles J. Koover	16
Bees—John V. Wilbanks	16
One Man's Opinion	16 - 17
Caucasian Bees in Town—J. N. Balleydier	17
Second Glances—C. M. Isaacson	18
Honey and Beeswax Production—1943	19
Editorials	20 - 21
Spinster Jane Says	22
Talks to Beekeepers—M. J. Deyell	23
Recent Meetings—M. J. Deyell	24
Just News	25
Asked and Answered	26

Subscription Rates—United States, one year, $1.00; two years for $1.50; three years for $2.00. Single copy, 10 cents. Other countries, 25c per year additional for postage. Discontinuance—Subscription stopped on expiration. No subscriber will be run into debt by us for this journal. Change of address—Give your old address as well as the new and write the name to which the journal has heretofore been addressed. Remittance should be sent by postoffice money order, bank draft, express money order or check. Contribution to Gleanings columns solicited; stamps should be enclosed to insure return to author of manuscript if not printed. Advertising Rates: Advertising rates and conditions will be sent on request. Results from advertising in this journal are remarkably satisfactory. Advertisers' Reliability: While the publishers do not guarantee advertisements in this journal, they use utmost diligence to establish in advance the reliability of every advertiser using space in this journal

Entered as second class mail matter at the Postoffice at Medina, Ohio, Published monthly.

The A. I. Root Company, Publishers, Medina, Ohio

E. R. Root and M. J. Deyell, Editors; M. W. Hobart, Assistant Editor; H. H. Root, Associate Editor; D. C. Babcock, Circulation Manager.